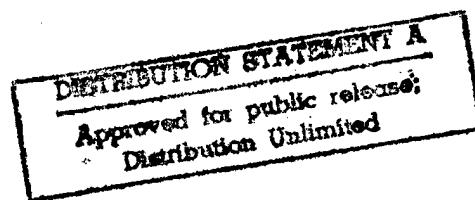


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8 August 1984



# USSR Report

AGRICULTURE

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8 August 1984

**USSR REPORT  
AGRICULTURE**

**CONTENTS**

**MAJOR CROP PROGRESS AND WEATHER REPORTING**

Grain Crop Progress in Voronezh Oblast (V. Komov; IZVESTIYA, 25 Mar 84) .....	1
Moscow Radio Reports Agricultural Developments 20 Jun-25 Jul (Moscow Domestic Service, various dates) .....	4
20-21 June	
6-11 July	
12-14 July	
15-16 July	
17-18 July	
19-20 July	
21-22 July	
23-25 July	

**Briefs**

Grain Crop Progress	14
Work in Rice Fields Begins	14
Fertilization of Winter Crops	14
Spring Field Work in Progress	14
Sowing of Corn Begins	15

**AGRO-ECONOMICS AND ORGANIZATION**

USSR Procurement Minister Reviews Efficiency of Operations (G. Zolotukhin; EKONOMIKA SEL'SKOGO KHOZYAYSTVA, No 4, Apr 84) .....	16
Estonian Official Responds to Item on Collective Contract (A. Sirendi; SOVETSKAYA ESTONIYA, 5 May 84) .....	29
Food Program Development, APK Effectiveness Assessed (VESTNIK STATISTIKI, No 5, Apr 84) .....	33

Agriculture Minister on Economic, Administrative Problems (A. Iyevlev; SEL'SKAYA NOV', Jun 84) .....	37
---	----

#### AGRICULTURAL MACHINERY AND EQUIPMENT

Moscow International Exhibit of Agricultural Machines, Equipment (A. A. Yezhevskiy; SEL'SKAYA ZHIZN', 20 May 84; SOTSIALISTICHESKAYA INDUSTRIYA, 29 May 84) .....	46
---	----

Minister Describes Content of Exhibit Goals of Exhibit Explained	
---	--

#### TILLING AND CROPPING TECHNOLOGY

Zonal Farming Systems Advocated for Efficiency (G. Ya. Vorob'yev; ZEMLEDELIYE, No 3, Mar 84) .....	51
---	----

Moldavian Sunflower Growing Problems, Progress Discussed (I. Petrovskiy, A. Batyr; SEL'SKOYE KHOZYAYSTVO MOLDAVII, No 3, Mar 84) .....	56
--	----

Importance of Creating Sunflower Hybrids Stressed (V. Lesnik, et al.; SEL'SKAYA KHOZYAYSTVO MOLDAVII, No 7, Jul 83) .....	59
---	----

Results of Seed Growing To Improve Sunflowers Reported (G. Pustovoyt, et al.; SEL'SKIYE ZORI, No 7, Jul 83) .....	63
--	----

Progress of Oil-Bearing Crops in Krasnodar Kray Reported (V. I. Svyatko; STEPNEYYE PROSTORY, No 10, Oct 83) .....	66
--	----

Ways of Fighting Against Seedless Sunflowers Outlined (V. K. Morozov; STEPNEYYE PROSTORY, No 4, Apr 84) .....	69
--	----

#### Briefs

Sunflower Hybrids	72
Industrial Sunflower Raising	72
Caricaturist Comments	72
Hybrid Sunflowers	73
Seeds for Planting	73
Oil-Bearing Crops	73

#### FORESTRY AND TIMBER

Technology of Processing Wood Waste Discussed (Various sources, various dates) .....	74
---	----

Problems in Krasnayarskiy Kray, by Yu. Galushko, et al. Resource Use in Latvia, by M. Daugavietis Implementation of Low-Waste Technology, by S. Lositskiy	
---	--

LAND RECLAMATION AND WATER RESOURCES

Minister on Effective Agricultural Use of Reclaimed Land  
(N. F. Vasil'yev; EKONOMICHESKAYA GAZETA, No 21, May 84) 84

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### GRAIN CROP PROGRESS IN VORONEZH OBLAST

Moscow IZVESTIYA in Russian 25 Mar 84 p 1

[Article by V. Komov: "The Harvest Begins With the Seeds"]

[Text] Last year, the farmers of Voronezh Oblast fulfilled the plan for grain procurement. Hundreds of kolkhozes and sovkhozes, however, are still obligated. To a large extent, it is because they sowed poor seed.

Meanwhile, there are a good many farms, in Liskinskiy Rayon, for example, where every year the yield is 1.5 to 2 times greater than the oblast average. One of the main reasons for this stability is the concern for seed material.

Today the field camp of IZVESTIYA is on one of these farms, the kolkhoz "Davydovskiy."

The snows did not spoil Voronezh farmers this year; the fields in many rayons remained almost black all winter. When I traveled to the kolkhoz "Davydovskiy" 100 km from Voronezh, I saw that the winter fields were bare. To be sure, the snow that fell in the last 10 days of March did dust the fields in some places.

V. Kuznetsov, kolkhoz chairman of the board, A. Antonov, agronomist and seed specialists, and I examined the warehouse. There was high-quality grain in all departments, which is attested to by the labels. On one of them are the words: "'dvoran' barley, first class, second reproduction, 1,750 quintals, disinfected;" on another: "'osypayushchiysya' peas, first reproduction, first class, 200 quintals, gas treated (progazirovan);" and on a third there was data on bulk oats.

In short, all seed down to the last kilogram is first class and highly viable. Mechanization specialists D. Savin, S. Kryuchkov and M. Stikin, as well as the operators of grain-cleaning machinery A. Shaposhnikov, I. Parshin and other masters in their own work had much to do with this. The concern for seed along with the strictest observance of all agronomy requirements permitted the farm to obtain an average of more than 30 quintals of grain per hectare last year.

"Last year's dry fall and the snowless winter test our resolve," noted the chairman. "We hope to stand fast. We expect to complete the sowing in 70 to 80 hours."

Not far from the kolkhoz is the Davydovskaya State Seed Station. It is managed by M. Zhukova, a specialist with almost 30 years of service.

"We are confident about Davydovskiy Kolkhoz, and not just about the people there. They always have excellent seed," she considers.

The same thing can be said about the neighboring sovkhoz "Vtoraya pyatiletka" headed by V. Semchenko, member of the RSFSR Supreme Soviet. We visited the farm and convinced ourselves that all seed is first class. It is no accident that in the last, as well as in the present, Five-Year-Plan, the farm obtained and obtains 32 to 35 quintals of grain per hectare. On many farms of Kalacheyevskiy, Talovskiy, Anninskiy and other rayons, 93 to 97 percent of the seed is first class.

And there are no "miracles" here. It is simply that agronomic discipline is being observed exactly and they are introducing a combination of measures provided for by a scientifically well-founded farming system. I remind you that long before the harvest last year, the oblast agricultural administration and the Scientific Research Institute imeni Dokuchayev carried out a seminar for agronomists that was devoted to the rules for cleaning up sowing areas and to the optimum system of operating seed-cleaning complexes and other machines.

Many of the 30 seed-management farms of the oblast are now being converted into basic subdivisions of scientific research institutes, where large-scale production experiments will be carried out on new varieties and their seed will be propagated.

Also important is the fact that effective measures were put into effect for the moral and material incentive of the winners of the competition for the best preparation of sowing material. Also, the stock of seed-cleaning equipment was increased and new standard warehouses and asphalt threshing floors were constructed. In summary, the oblast holds one of the leading positions in seed quality in the republic this year; 76 percent of the seed prepared here is first-class seed--almost 30 percent more than last year. More than 100 kolkhozes and sovkhozes have seed belonging only in the top classes. And a reserve seed supply was created. This is particularly important under conditions where, as it appears, it will be necessary to resow and sow additional seed on more than 200,000 hectares of winter crops.

We point out that the preparation of sowing material is not going well everywhere. On the farms of Povorinskiy Rayon, for example, only half as much seed is first-class seed as compared with the best rayons. Also, one-fifth of the seed is third class. This is cause for concern. Can anything be done?

The commentary of I. Bondarenko, deputy chief of the oblast agricultural administration:

"Yes, something can be done. Let us take, for example, Bogucharskiy and Petropavlovskiy rayons, both lagging behind until recently. As a result of a thorough operational cleaning of seed, an interfarm exchange and a filling of stocks through state resources, there is now not a single kilogram of

unconditioned sowing material here. We demanded of those who are still lagging behind that they complete seed-preparation work in the next 2 or 3 days, that they organize the use of seed-cleaning machinery in two shifts and that they conclude disinfection work. We still have to finish sorting the seed of late crops--millet and buckwheat--at the mobile sorting stations."

Now a word about something that is difficult for us to decide ourselves. There are not enough machines to clean the seed of small-seeded crops and to disinfect them. There are no special loaders. How many years does the USSR Ministry of Agriculture need to organize the delivery of machine-laboratories for express analyses? There are not enough pull-out cabinets. There is a need to give this some serious thought.

The day is not far off when farmers will go out into the fields. To a large extent, how they carry out the sowing campaign and now the harvest will be is being decided today, right now.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### MOSCOW RADIO REPORTS AGRICULTURAL DEVELOPMENTS 20 JUN-25 JUL

20-21 June

LD220457 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 20-21 June 1984. Times of broadcasts are given in parentheses at the end of each item.

20 June

In Uzbekistan shortly some 50,500 combine harvesters will be sent into fields. On irrigated fields where grain has been reaped, repeat sowings of forage crops will be carried out. (1750 GMT)

In Tomsk Oblast the first dozens of tons of grass meal have been delivered. This year it is planned to supply 25 quintals of fodder units per animal, a quarter more than last year. (1750 GMT)

The bread grain harvest has started in Uzbekistan. (1904 GMT)

All is ready for the harvest in Stavropolye. (1904 GMT)

21 June

To date bread grain has been harvested in the USSR on almost 170,000 hectares. Most of this area is in Uzbekistan. Early potato picking is under way in the south of the country and 1.3 million tons of early vegetables have been dispatched. A quarter of a million metric tons of tea leaves have been picked and over 15 million hectares of hay has been cut. (0100 GMT)

Fodder procurement in full swing in Kokchetav Oblast, Kazakhstan. (0600 GMT)

Warm weather in western Siberia is encouraging grass growth; grassmeal units are in action in Tomsk Oblast, where 250,000-260,000 tons of fodder has been pledged. (0600 GMT)

6-11 July

LD120017 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service

in Russian on 6-11 July. Times of broadcasts are given in parentheses at the end of each item.

6 July

Kazakhstan fodder procurement workers have harvested grasses on 10 million hectares or 33 percent of lands set aside for haymaking in the republic this year. So far 3.5 million tons of hay has been placed in stacks and ricks. Also 1.25 million tons of haylage and 50,000 tons of vitaminized grass meal has been procured for winter storage. (1904 GMT)

In Stavropol Kray, over the past 24 hours 100,000 hectares of grain was cut. Work is going on from dawn to dusk. (0800 GMT)

7 July

Saratov Oblast began harvesting. In all machine operators are to harvest early grain crops from an area of about 4 million hectares. (0200 GMT)

Procurement of fodder is in full swing in Tajikistan. About 800,000 metric tons of coarse fodder has been prepared. This is 50 percent of the annual plan. (0200 GMT)

The grain from the new harvest has started arriving at Rostov Oblast elevators. About 50 percent of the wheat is assessed as being strong.

Following on the heels of Osh Oblast, cutting of barley and wheat has started in the Chu and Talas valleys. This year, grain workers intend to thresh cereals on more than 500,000 hectares. On irrigated areas, it is planned to obtain at least 35 quintals per hectare of grain. (1330 GMT)

The first million metric tons of coarse fodders has been procured for public sector stock breeding in Kirgizia. Haymaking is to be carried out on 760,000 hectares this year, with at least 30 quintals of hay from every hectare. This year, the pledge is to procure 3.75 million metric tons of coarse fodder. (1330 GMT)

In the Ukraine tending of sugar beet is in progress. The crop occupies 1.7 million hectares. (1500 GMT)

8 July

Haymaking has begun in Kurgan Oblast; 150,000 metric tons of hay have been laid in. (1100 GMT)

The last combine harvesters have left the fields in Surkhan-darya Oblast. About 20,000 metric tons of wheat and barley have been delivered. (1800 GMT)

9 July

In Ryazan Oblast hay has been harvested from over 300,000 hectares, despite rain. More than 100,000 metric tons of hay--1/3 of requirements--has already been laid in for animal fodder, and 8,500 metric tons of vitamin and grass meal has been produced. (0400 GMT)

10 July

Kazakhstan machine operators have completed the first treatment of fallow lands--which amount to over 5 million hectares--with pesticides and mineral fertilizers. Autumn ploughing is also in progress in the south. This year over 20 million hectares has been designated for autumn ploughing, and to date over 100,000 hectares have been ploughed. (0600 GMT)

Uralsk Oblast has started harvesting. Five Kazakh oblasts are now threshing. Grain has been cut on over 600,000 hectares. (0800 GMT)

Over 100,000 metric tons of winter wheat have been delivered to Krasnodar procurement points. (1200 GMT)

11 July

Kherson Oblast has begun harvesting winter wheat. Stavropolye farmers have dispatched first 100,000 metric tons of new grain. (1800 GMT)

Crops are being harvested in the south of the Soviet Union. Cereals have been harvested on the first millions of hectares in the northern Caucasus, in Central Asia and in Transcaucasia. A good harvest is reported there and the farmers expect to sell to the state more grain than last year. The Soviet Union is the world's biggest producer of wheat. It meets its requirements in food grain in full but purchases grains for the needs of livestock breeding. (1900 GMT)

12-14 July

LD150111 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 12-14 July. Times of broadcasts are given in parentheses at the end of each item.

12 July

USSR CSD reports grain cut on almost 9,000,000 ha and threshed on almost 6,000,000 ha. (0001)

Hay cutting is under way in north Kazakhstan; over 500,000 is already laid in in Tselinograd Oblast. (0001)

Tambov Oblast has started harvesting peas, which are sown on over 1,000,000 ha. (0204)

13 July

Omsk Oblast fodder harvest in full swing: almost 400,000 T hay laid in so far--one third of requirement. (0001)

Pavlodar Oblast farmers have cut grasses from 1,000,000 ha. (0001)

Breadgrain harvesting is gathering pace in Ukraine. Cutting and threshing of swathes has now been carried out on over 2 million ha here. Harvesting is proceeding smoothly in Crimea, Kherson and Zaporozhets oblasts, where half the area has already been dealt with. In the republic 13,000 harvesting and transport detachments have been created and the work is to be completed in 10-12 working days. (1000)

Winter breadgrain has been cut on the first million hectares in Stavropol Kray. (1000)

14 July

Omsk mechanizers have laid in 500,000 T hay so far, more than one third of the plan task. (0001)

The harvest is spreading on the fields of Kirgizia. Today mass gathering of ear crops is being carried out by farms in Osh, Chu and Talas valleys. According to the operational date from the republican ministry of agriculture, by this morning barley and wheat had been cut over an area of 100,000 ha. This year the grain growers of Kirgizia intend to sell to the state over 212,000 T grain. (0400)

Feed preparation continues in Ryazan Oblast. To date the farms of the oblast have laid 130,000 tonnes of hay in store for the winter. (1100)

Kuban grain harvesters have harvested 1 million T. Over half of this is strong winter wheat. (1300)

Orel Oblast farmers are first in the Central Nonchernozem Zone to start grain harvesting. (2230)

15-16 July

LD170142 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 15-16 July. Times of broadcasts are given in parentheses at the end of each item.

15 July

Surkhandarya has completed harvesting of winter cereals. Maize harvesting is beginning in the valley. (0400)

Grain harvesting is in progress in southern Kazakhstan. Chimkent, Dzhambul, Alma-ata and Taldy-Kurgan oblasts have 2,000,000 ha of bread grain crops, while the whole of Kazakhstan has nearly 25,000,000 ha under grain. Kerken-skii Rayon in Czhambul Oblast has about 70,000 ha which are being tilled according to virgin land methods and this has increased the yield by 5-6 q/ha compared to the average yield for the oblast. (1010)

First cutting of grasses carried out in Tatariya, producing over 300,000 T of first-class hay. (0104)

Kurgan Oblast: grasses have been mown on half the total area. (0200)

In Uzbekistan the first stage of the Sufantay reservoir has been completed. When finished, the reservoir will hold about 14,000,000 cu.m. The first stage now holds about half of this amount. The waters of the Sufantay River and reservoir will provide irrigation for 2,500 ha of virgin land, with only first stage built. (0200)

Southern rayons of Orenburg Oblast have commenced bread-grain harvesting. (0100)

Threshing of grain crops begins on the remaining half of the sowing area in Stavropol steppes. Harvest has been completed on almost 1,000,000 ha. (1300)

Gorkiy Oblast named rayons began grain harvesting. The oblast farmers will this year carry out grain harvesting on more than 1,000,000 ha. (2005)

Specialized farms in the Mari ASSR nonchernozem zone have started harvesting perennial grasses for seed. They occupy more than 13,000 hectares in the autonomous republic, and enable the collective and state farms to provide their own grass seed requirements. (2104)

Hay-making is in full swing on the shores of the Sea of Okhotsk. (2104)

16 July

Saratov Oblast: winter crops threshed on 500,000 ha by today. (0600)

1.5 million T of feed procured in Kirgizia by today. (0600)

Turgav Oblast: All elevators are ready to receive the new grain harvest. (1100)

Altay Kray winter rye covers over 250,000 ha. Machinery is nearly ready for harvesting; 24,000 Sibiryak and Niiv combines have been overhauled, which is 95 percent of the total. (1100)

Mass harvesting of grain crops started in the Kursk Oblast today; they occupy 1,000,000 hectares. (1100)

Rye is ripening in the Altay Kray. Winter crops in the kray exceed 250,000 hectares. A good harvest is expected everywhere. (1100)

17-18 July

LD190206 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 17-18 July 1984. Times of broadcasts are given in parentheses at the end of each item.

17 July

Mass cutting of grain crops starts in Kursk. (0104)

Dagestan farmers harvest half of crop so far, on 100,000 ha. (0204)

Turgay elevators and procurement points ready ahead of schedule. (0204)

Crimean farmers have harvested wheat on half of sown area. (0400)

Grasses but on almost half of area in Perm Oblast. (0400)

SELSKAYA ZHIZN reports in the Harvesting Diary on the progress of harvesting in Krasnodar Kray. Overcoming the caprices of the weather, farmers are stepping up the speed of harvesting; over 1,200,000 T of grain has been delivered to elevators, more than half of it strong and valuable wheat. However, a number of rayons are lagging behind in regard to speed and quality. (0500)

Farms in Stavropol Kray have delivered 500,000 T grain to state granaries. This is more than a quarter of the amount planned and it is of exceptionally high quality. Most of the wheat harvested in the kray are of the strong and valuable varieties. (0700)

Early potato harvest has started in Belorussia. (1300)

Over 1,000,000 T hay and haylage procured in Altay. (1300)

Under the title Valuable Haymaking Time, PRAVDA prints a report from Latvian SSR on the course of feed preparation in the republic. By mid-July, it has prepared 86 percent of hay and 70 percent of haylage. (2300)

18 July

Harvest of winter barley in Kuban has ended. (0104)

19-20 July

LD210125 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 19 July. Times of broadcasts are given in parentheses at the end of each item.

19 July

Omsk Oblast has procured its first million tons of coarse and succulent fodder crops. (0600 GMT)

Reaping of winter grains is over in Kuban. Threshing is complete on the majority of the area. (0700 GMT)

Winter barley and wheat is arriving at the procurement points in Dagestan. (0700 GMT)

First grain is arriving at elevators in Orenburg Oblast. (1100 GMT)

In Tselinograd Oblast the laying-in of fodder is proceeding amid difficult weather conditions. Hot weather has lasted several weeks here. So far 700,000 hectares hay has been laid in, or almost 60 percent of the planned amount. (1100 GMT)

Halt of Altay's elevators are ready to receive grain from the new harvest. (1300 GMT)

Novgorod farms have started dispatching early potatoes. (1300 GMT)

250,000 tons of hay have been procured in Kurgan Oblast. (1530 GMT)

20 July

Grain reaping has been completed on more than 100,000 hectares in Kursk Oblast. Threshing of one quarter has been carried out. (0400 GMT)

Harvesting has started in Kuyby shev Oblast. (0400 GMT)

Novomoskovskugol association in Tula Oblast has started working on August account. (0400 GMT)

Mass grain harvest under way in Tataria where over 2,000,000 hectares is sown to grain. (0600 GMT)

1,000,000 tons coarse fodder procured in Tajikistan. (0600 GMT)

The harvest has started in Tataria. Grain has to be gathered from over 2 million hectares. Without waiting for the end of the reaping farmers in the Crimea have begun preparing the fields for the next harvest. (0700 GMT)

The second cutting of lucerne has begun on irrigated land in Volgograd Oblast. (1100 GMT)

Harvest of winter crops is being completed on an area of 800,000 hectares in Saratov Oblast. (1530 GMT)

Ninety thousand tonnes of hay, that is 50 percent of the planned quantity, have been prepared to date in the nonchernozem zone of Mari ASSR. (1530 GMT)

21-22 July

LD230240 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 21-22 July. Times of broadcasts are given in parentheses at the end of each item.

21 July

Almost 500,000 hectares of plowed land in Kirgizia has been planted with grain crops. Harvest has begun on many farms. (0400 GMT)

The farms from most rayons of Saratov Oblast have started selling bread-grains to the state. To date, procurement workers have already received 130,000 tons of grains. (0430 GMT)

Stavropol Kray: 800,000 tons of grain has been sold to the state; 95 percent of the wheat is of hard or valuable category. (0600 GMT)

Perm Oblast: 1 million tons of silage has been laid, which is one-third of the required amount. (0600 GMT)

Kharkov Oblast: repeat sowing of feed crops is underway on 200,000 hectares; half of this work has been completed. A yield of about 800,000 tons of green vegetables is expected in the autumn, which is one and a half month's supply of cattle food for the oblast. (0600 GMT)

Mass harvesting of bread-grain has begun in Orenburg Oblast. The dry weather has obliged farmers to adjust their working plans. Both winter and spring crops are ripening simultaneously over large areas. Over 20 rayons of the oblast have started harvesting grain crops. (1100 GMT)

22 July

In Kazakhstan, 30 million hectares have been set aside for hay. Laying in of haylage is practiced widely, and 2 million tons of succulent feed have already been laid in. (0001 GMT)

Harvesting of barley and wheat in Kirgizia is in full swing: at the same time, seeds are being laid in for next year. (0204 GMT)

In Altay, 1,000,000 tons of hay, haylage, and vitamin grass meal has been procured to date. This is half of the plan. (0700 GMT)

Donetsk Oblast rayons completes harvest. (1100 GMT)

Ukraine: Feed procurement complexes in south Ukraine have gone out in the fields to cut grasses a second time; in Odessa Oblast, annual pledges for the procurement of hay were fulfilled by the first cutting. Farms of Crimea, Zaporozhye, Nikolayev, and Khmelnitskiy oblasts have exceeded the annual plan for laying in haylage. Cherkassy Oblast has also exceeded plan for laying in silage. (1100 GMT)

Kursk Oblast has reaped early cereals and pulse crops on 150,000 hectares. (1630 GMT)

Harvest vehicles dispatched from Moscow for harvest work in country. (2005 GMT)

23-25 July

LD260315 [Editorial Report] The following is a compilation of reports on agricultural developments in the USSR carried by Moscow Domestic Service in Russian on 23-25 July. Times of broadcasts are given in parentheses at the end of each item.

23 July

Kursk Oblast agricultural workers have gathered early grain and pulse crops on an area over 150,000 hectares. (0001 GMT)

Novoazovskiy Rayon agricultural workers have completed grain harvest. (0001 GMT)

Grain has been harvested on 400,000 hectares in the Kuybyshev Oblast. (0400 GMT)

Tataria agriculturalists are planting peas--which occupy more than 200,000 hectares; in half of the rayons of the republic, the harvest of this crop has been completed within schedule. (0400 GMT)

The first million tons of grain is in state grain storage in Stavropol Oblast. Farms pledged to produce 1,960,000 tons of grain. (1300 GMT)

Rostov Oblast is completing the harvest of breadgrain crops. Cereals have been threshed here on 2 million hectares. (1530 GMT)

First tons of grain have reached reception points in Ivanovo Oblast. Farms in four rayons are reaping winter rye and wheat. (2230 GMT)

24 July

In Tomsk Oblast, feed is being harvested on the water-meadows near Kolpashevo. (0001 GMT)

Winter rye harvest has begun in Kurgan Oblast. (0204 GMT)

Grain has been harvested on the first 300,000 hectares in Orenburg Oblast. (0400 GMT)

Harvest is almost complete in Checheno-Ingushetiya. (0400 GMT)

Tula Oblast: the first 65,000 hectares of grain has been cut. This year a "not bad" harvest has been grown with an average yield of over 19 q/ha. Sown and natural grass has been cut from over 90 percent of its area in the oblast. (0800 GMT)

Harvesting has commenced in the Issyk-kul Oblast of Kirghizia. (1100 GMT)

The first tons of the new harvest's grain have reached reception points in Ivanovo Oblast. (1100 GMT)

Kuban farmers' field work progress: over 2 million tons of grain delivered to the state. (1800 GMT)

Nine Kazakh oblasts have begun threshing wheat and barley, while the harvest is virtually complete in the south of the republic. (2304 GMT)

25 July

Cereals have been cut on 500,000 hectares in Kuybyshev Oblast, over one-quarter of the total area. (0200 GMT)

Winter rye harvest has started in Perm Oblast. (0200 GMT)

To date, 85,000 hectares of winter and spring pulse crops have been harvested in Tajikistan; this is more than 53 percent of area sown. Corn has been sown on fields on which wheat and barley have been harvested. (0204 GMT)

In the last 24 hours, 10,000 tons of winter wheat and rye has reached reception points in Saratov Oblast; all rayons are selling grain to the state and first deliveries of barley are coming through. (0400 GMT)

Grain crops have been harvested on 24,600,000 hectares and threshed on 20 million hectares in the country. Harvesting is being carried out by all the union republics. This week, farms of Moscow Oblast, Belorussia, Baltic republics, and Khabarovsk Kray began harvesting. In Krasnodar and Stavropol Kray it is near completion, as well as in Dzhambul Oblast and Crimea. Parshin, Agriculture Ministry official, says that in the course of the last week, the tempo of harvesting has increased considerably. All the conditions for round-the-clock work of harvesting groups have been created. (0730 GMT)

Kursk Oblast farmers have harvested on one-third of field area. (1500 GMT)

Gomel Oblast starts harvesting. (1500 GMT)

CSO: 1824/587

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

GRAIN CROP PROGRESS--Belgorod, 7 Apr--From morning until evening, agricultural aircraft circle the fields. Mechanization specialists have put ground resources to work. Winter crops are being fertilized with mineral fertilizers. This important agrotechnical procedure has already been carried out on more than 200,000 hectares. Farmers of Valuyskiy, Veydelevskiy, Gubkinskiy, Shebekinskiy and other rayons have applied chemical fertilizers to more than half of the area sown in winter crops. Preparations have been completed for root fertilization being carried out on 100,000 hectares. [By A. Trubnikov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 8 Apr 84 p 1] 9746

WORK IN RICE FIELDS BEGINS--Astrakhan', 16 Apr--Dozens of machines are now concentrated in the rice fields of the kolkhoz "Kininchinskiy." Some of them are occupied with the tilling of the soil, others are disking the winter fields and still others are leveling fields. All 26 mechanized rice-growing production teams are now working under the collective contract. Sowing machinery has been assembled and will be put to work in the near future. Every day the front of the field work widens in the rice fields of the specialized farms of Kamyzyakskiy, Kharabalinskiy, Krasnoyarskiy and other rayons of the oblast. [By A. Golovko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Apr 84 p 1] 9746

FERTILIZATION OF WINTER CROPS--Pilots of the Privolzhskiy Civil Aviation Administration have begun mass fertilization of winter crops in Kuybyshev Oblast. Hundreds of winged helpers of grain farmers are working the fields. To carry out this important agricultural procedure in the best times, crews have come from the Kazakh, Uzbek and Tadzhik administrations to help out the inhabitants of the Volga region. The aerial work on the fields is proceeding more rapidly than usual this year and this is being achieved through the use of wide-area sprayers. [Text] [Moscow PRAVDA in Russian 16 Apr 84 p 3] 9746

SPRING FIELD WORK IN PROGRESS--Cherkessak, 18 Apr--The farms of the autonomous oblast are fertilizing and repairing damaged winter crops. It has been decided to cultivate basic spring crops--corn for grain, sunflowers, sugar beets, potatoes and soy beans--only in accordance with industrial technology. Using every hour of good weather, the mechanized production teams and squads are successfully performing spring field work. The sowing of early grain and leguminous crops has been completed. Work has begun on the sugar beet plantations. [By D. Daurov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 19 Apr 84 p 1] 9746

SOWING OF CORN BEGINS--Nal'chik--Machine operators of corn seeds, have moved the entire sowing machinery out into the fields. [Text] [Moscow TRUD in Russian 22 Apr 84 p 1] Ul'yanovsk--Beet growers of Ul'yanovsk Oblast have begun sowing work. [Text] [Moscow TRUD in Russian 28 Apr 84 p 1]  
9746

CSO: 1824/400

## AGRO-ECONOMICS AND ORGANIZATION

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### USSR PROCUREMENT MINISTER REVIEWS EFFICIENCY OF OPERATIONS

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 4, Apr 84 pp 27-35

[Article by G. Zolotukhin, USSR Procurement Minister: "Increasing the Effectiveness of Procurement"]

[Text] The procurement sphere plays an important role within the system of the national economic agro-industrial complex and in forming state resources. In the final analysis its activities are directed at fulfilling the main socio-political goal of the party--to raise the standard of living of the Soviet people.

The problem of food supplies for the Soviet people, of satisfying the ever-increasing demand for food products was always at the center of attention of the communist party and the Soviet government. In working out a program of socialist building in our country, V. I. Lenin proclaimed, "The real foundation of an enterprise is its food fund...Without this type of fund socialist policy will remain only a wish" ("Poln. sobr. soch." [Complete Works], Vol 42, p 150).

Following Lenin's course faithfully, the party and government are constantly giving unweakened attention to developing centralized food resources for the state. The forms and methods and even the system of procurement itself changed and were improved depending upon circumstances in the country and on the goals that were put forth by the party at each stage of socialist building, but the essence remained unchanged. It amounted to the accumulation and strengthening of centralized food funds.

This is why the communist party and the Soviet government demonstrate constant concern for the development of a modern material-technical procurement base as it relates to the reception, storage and processing of grain, potatoes, vegetables, cotton, other industrial crops and even livestock products. Today the system of the USSR Procurement Ministry alone has almost 5,000 grain-reception enterprises, including over 1,500 elevators equipped with the newest technology, 800 flour milling and 600 mixed fodder plants and a broad network of enterprises and shops that produce groats, carbamide concentrates and premixes. For the maintenance of the technical base in working order there are 22 machine building plants manufacturing non-standard equipment. The activities of eight scientific-research and planning institutes, headed by

the All-Union NII [Scientific Research Institute] of Grain and Grain Products, which has affiliates in Krasnodar Kray, Tselinograd and Novosibirsk, are devoted to the preservation of state grain and to its effective use.

The party and government have given the USSR Procurement Ministry the role of managing the procurement of all types of agricultural products and raw materials. A broad network of state inspectorates on the procurement and quality of agricultural products was developed for this purpose. There are over 3,000 of these in rayons, oblasts, krays and autonomous republics. Working in them are about 15,000 state inspection agents. They are agricultural specialists, but many of them have experience in party, soviet and economic work. They deal with questions involving contracts and implement government controls over adherence to procurement discipline when fulfilling procurement plans and contractual agreements. A great deal of attention is given to the quality of procured products and their preservation as well as to the correctness and timeliness of accounts of enterprises and procurement organizations. A large part of their job involves problems related to improving the forms and methods of procurement. Within the system of the procurement ministry there are over half a million workers of whom about 100,000 are specialists with a higher and secondary education.

Until the restructuring of agricultural management and the development of the APK [Agro-industrial complex] and agro-industrial associations departmental fragmentation in a number of cases hindered the fulfillment of plans for the procurement of agricultural products. Even economic stimulation did not always enable us to actively influence the production of those products in which the state was interested. Frequently a notorious barrage was the "victor," especially with regard to the fulfillment of plans for the sale of agricultural products in an assortment. Kolkhozes and sovkhozes, ignoring contract agreements, fulfilled the plan with one or two of the most productive crops.

The development of an agro-industrial complex and its administrative organs in the center, in union republics, in krays, oblasts and rayons of the country enables us to achieve a radical change regarding questions of increasing the production and procurement of agricultural products, especially grain, in the volume and assortment needed by the state to satisfy the demand of the population and of the processing industry. Now procurement organizations, participating in the activities of agro-industrial associations which coordinate plans for the production and procurement of grain and other agricultural products, have noticeably activated their work. They systematically prepare and make proposals on more urgent questions of an inter-branch nature which have a direct relationship to increasing procurement, on improving procurement methods, on preparing the technical base of procurement organizations, on helping supply enterprises with seed and so forth.

A good example is the work of the state procurement inspectorate of Volzhskiy Rayon, Kuybyshev Oblast. It is conducting an active struggle to make sure that state procurement plans and contract agreements are met with stability in terms of the necessary products in the proper assortment and high quality. Materials of the state procurement inspectorate are often evaluated by the RAPO [Rayon agricultural production association] soviet and published by the

local press. This encourages a strengthening of plan and procurement discipline and has a positive effect on the final results of procurement. In 1983 in this rayon plans for grain procurement in the proper assortment were fulfilled, including for strong and durum wheat. Moreover, the proportion of high quality grain comprised 78 percent. The plans for the procurement of all products were totally fulfilled in 3 years.

In Saratov Oblast the state procurement inspectorate of Krasnokutskiy Rayon has earned its position of authority. Since the first days of RAPO organization it has actively participated in its work and deals with problems that arise in a business-like manner. It focuses considerable attention on a balanced plan for the production and procurement of grain and other agricultural products, on seeking additional resources for acquiring them for state resources and on coordinating the activities of kolkhozes, sovkhozes, grain-reception enterprises and other procurers. The purposeful work of this inspectorate enables us to secure the fulfillment of plans for the procurement of grain, potatoes, vegetables, meat, milk, eggs and wool with stability. In 1983 these plans were significantly overfulfilled.

A significant contribution to the organized procurement of agricultural products is being made by the state procurement inspectorates of Krasnodar Kray, Kharkov, Kustanay, Kokchetav, Aktyubinsk and many other oblasts and republics in the country.

Under the conditions of work of agro-industrial associations it became possible to solve many of the problems of procurement operations more efficiently. Thus, the Kolkhoz imeni Salavat of Khaybullinskiy Rayon, Bashkir ASSR, is located in the interior. It is 60 kilometers from the nearest dairy plant. The roads are bad and the enterprise was forced to process the milk it produced, and this equalled a thousand tons annually, into butter locally. Because of the differences in the procurement prices for whole milk and butter and because of losses during processing the enterprise received about 100,000 rubles less than it should have for the butter sold to the state. In 1983, after the creation of the RAPO, a milk reception point was opened and is in operation on the territory of the Kolkhoz imeni Salavat, which has significantly increased production effectiveness.

During the first half year of 1983 the Dzhambulskiy Sovkhoz of Enbekshil'derskiy Rayon, Kokchetav Oblast, underfulfilled the plan for the sale of livestock to the state while at the same time tolerating excessive expenditures of this products for intra-enterprise purposes. Specialists of the rayon state procurement inspectorate investigated the use of products in the enterprise and the reasons why the 6-month plan was not fulfilled and indicated ways to eliminate problems. As a result of the measures taken the sovkhoz fulfilled the annual plan for the sale of livestock to the state, increasing its sale to the state by 34 percent over the preceding year. In the Sovkhoz imeni 40 Letiye Kazakhskoy SSR of Zarendinskiy Rayon of the same oblast an investigation showed that the enterprise tolerated losses of milk during processing into cream. It was recommended that whole milk rather than cream be delivered. As a result in 1983 the marketability of milk increased to 90 percent. As a result of this the enterprise sold the state an additional 70 tons of this product.

Agro-industrial associations in rayons, oblasts and krays have taken only the first steps in implementing the Food Program. Nevertheless, thanks to the measures taken by the party and government and to the selfless labor of rural workers the procurement of grain, including rye, rice, brewing barley, pulse crops and oats, increased in 1983. Procurement plans for potatoes, vegetables and tea leaves were fulfilled. As compared with 1982 there was a significant growth in the procurement of sugar beets, fine-fiber cotton, flax fiber and many other industrial crops.

Last year was not an easy one for livestock raising. In many republics and oblasts in the country a difficult situation developed with regard to feed for livestock and poultry. The consequences of unfavorable weather conditions of preceding years in the five-year plan had their effect. Only thanks to the help of the party and government and to the increased activeness of all participants in agro-industrial associations, in most union republics, oblasts and rayons of the country livestock farmers and procurers were able to stop lags in public livestock raising and to noticeably increase the production and state procurement of livestock products. In the country as a whole 1983 plans were fulfilled for the procurement of meat, milk, eggs, wool and some other types of livestock products. Moreover, in the procurement of meat, milk and eggs the highest indicators were achieved as compared with previous years. The quality of livestock products improved somewhat.

There was an increased procurement of surplus potatoes, fruits, vegetables and livestock products from private plots. This has a positive effect on the replenishment of the country's food resources and on improving the supplies for the Soviet people.

The plan was successfully fulfilled by the industrial enterprises of the flour milling-groats and mixed fodder industry of the USSR Procurement Ministry. Above the plan alone the country obtained 370,000 tons of quality flour. The production of mixed fodder and protein-vitamin supplements (BVD) increased by over 1.3 million tons. The capacities of milling and mixed fodder enterprises increased. The capacities of grain storehouses grew considerably.

Life convincingly confirms the correctness of the political course developed by the 26th party congress and expanded and consolidated in the decisions of subsequent plenums of the CPSU Central Committee. The first results of the implementation of the Food Program attest to the fact that a good beginning has been laid and that important positive changes in the development of the agro-industrial complex are indicated. But before us there is still no end to work. As emphasized in a resolution of the December 1983 Plenum of the CPSU Central Committee, now it is important to maintain the pace that has been set and the general mind set involving the practical solution of objectives, to steadfastly raise the level of party and state management of the economy, to actively develop positive tendencies and to give them a stable nature. This was once again confirmed with special force at the special plenum of the party's central committee in February 1984.

This means that today every agro-industrial association must have a clear and specific program of action oriented toward the continued growth of production and procurement of grain and other livestock and agricultural products and at the fuller and more effective utilization of powerful economic potential created in the branches of the APK. It is important to focus attention on the elimination of bottlenecks and some great shortcomings which have a negative effect on food supplies to the Soviet people.

Grain occupies a special place in supplying food. It is an irreplaceable product in daily demand. Not a single Soviet family can do without it. People satisfy over 40 percent of their daily needs with grain. Unfortunately, in recent years due to the unfavorable weather conditions, in some cases to organizational shortcomings and low state discipline the plan for grain procurement was not fulfilled in some rayons and oblasts. The quality of procured grain continues to be a problem. Insufficient attention is given to the production and procurement of wheat in ancient wheat regions such as Altay Kray, Saratov, Volgograd, Rostov, Orenburg and Chelyabinsk oblasts as well as the steppe regions of the Ukraine. The positions of Kherson, Nikolayev, Voroshilovgrad, Zaporozhye and Dnepropetrovsk oblasts have grown weaker here.

The situation involving wheat resources is becoming more complicated in some places because of poor quality. In recent years the procurement of strong and durum wheat has dropped. Recently workers of the USSR Procurement Ministry, together with specialists from the RSFSR Procurement Ministry and Agricultural Ministry, investigated how measures to increase resources of food wheats and to improve their quality are being implemented. An examination showed that in some regions this work is poorly organized. For example, in Penza Oblast a large amount of wheat can be used only for forage and industrial purposes. Here wheat infection with smut was tolerated. It is essential to eliminate the improper attitude toward cultivating full-value food wheat and to utilize the experience of scientific-research institutions of leading kolkhozes and sovkhozes and variety plots which produce wheat with high bread-baking qualities under the same conditions.

We must mention the necessity of restructuring the work of grain-reception enterprises with regard to the procurement of high-quality wheat. As the main contracting agents for grain, they annually conclude over 45,000 contractual agreements with sovkhozes and kolkhozes. But unfortunately many of them limit their role to the reception of grain, its processing and storage. Meanwhile, the state is interested in procuring batches of grain that are uniform in quality so that high quality wheats are not mixed in with wheats of a lesser quality. For example, kolkhozes and sovkhozes receive supplements of 30 or 50 percent to the procurement price for strong wheats which are used as upgrading agents in processing flour depending upon their gluten content, but for the sale of quality durum wheat which is used to make high quality macaroni products supplements equal from 20 to 100 percent.

The correct formation of grain batches according to quality depends greatly on the business-like cooperation of kolkhozes, sovkhozes and grain-reception points. The formation of grain batches begins on the threshing floors of kolkhozes and sovkhozes. If a mixing of grain of various qualities is tolerated

at the threshing floors, then later it is practically impossible to correct the situation. In order not to allow this and to secure the correct formation of uniform batches of grain from durum wheat and strong wheat varieties the workers of laboratories in many grain-reception enterprises, together with specialists of kolkhozes and sovkhozes, determine the quality of grain in a preliminary manner on fields and threshing floors of sovkhozes and kolkhozes as maturation of the grain and harvesting occur. Batches of strong and durum wheat varieties which correspond to the requirements of the standard in terms of quality are placed in a separate area on threshing floors.

This work is well organized in Kustanay, Kokchetav, Turgay and Orenburg oblasts, Krasnodar and Stavropol krays and other regions of the country. This enabled many enterprises to significantly overfulfill established plans for the procurement of strong wheats. Thus, the Kanevskiy Elevator in Krasnodar Kray procured 50,000 tons of strong wheats as compared to the planned 35,000 tons in 1983; the Novopavlovskiy Elevator of Stavropol Kray--45,000 as compared to 35,000 tons; and the Rudnyy Klad Elevator of Orenburg Oblast--28,000 as compared to 16,000 tons.

Calculations show that an improvement in wheat quality to the level of food condition in the basic zones of high-quality commodity grain--the Kazakh SSR, the Northern Caucasus, the Transvolga, the steppe rayons of the Urals, Siberia and the southern oblasts of the Ukraine, as determined by the Food Program--would enable us to increase the volume of full-value wheat grain by a factor of 1.8 during 3 years of the current five-year plan. From the sale of such wheat the kolkhozes and sovkhozes of these regions could produce a supplementary 750 million rubles for increased grain quality, and the sum total of monetary supplements for quality would equal over 1,640 million rubles.

An important place in the nutrition of the Soviet people is occupied by buckwheat, millet, peas and some other groats crops. However, the plans for the procurement of groats crops systematically remain unfulfilled both in quantity and quality. In 1983 in the RSFSR the plan for the procurement of buckwheat was fulfilled by only four oblasts and krays of 38 which were assigned plans; for millet--eight of 26. In the Ukrainian SSR the plan for the procurement of buckwheat was fulfilled completely only by Ternopol Oblast out of 18 oblasts. The Belorussian SSR has not been fulfilling plans for the procurement of buckwheat for many years. During the last 8 years the kolkhozes and sovkhozes of Orlov, Ryazan, Tula, Belgorod, Kursk and Pskov oblasts have not fulfilled the plan for the sale of pulse crops a single time. Because of the curtailment of crops, low productivity and great losses the plan for the procurement of sunflowers remains unfulfilled each year. Plans for corn procurement have not been fulfilled for many years. In 1983 the kolkhozes and sovkhozes of Dnepropetrovsk Oblast collected over 0.5 million tons of corn, or 87 percent of the threshed amount while at the same time fulfilling the plan for the sale of corn to the state by only 24 percent. Many enterprises have the same tendency.

The chronic non-fulfillment of plans for the procurement of all crops, apart from signifying direct losses to food supplies, results in deviations from the standards of mixed fodder production. This decreases the effectiveness

of utilizing economic potential created in one of the largest branches of the agro-industrial complex.

An important prerequisite for increasing state resources of grain and oil-bearing seed is the procurement and development of a state seed fund of quality and hybrid seed. This fund is essential for rendering aid to kolkhozes and sovkhozes which have suffered as a result of natural calamities, unfavorable weather conditions or other reasons which did not allow enterprises to procure their own seed. In 1982-1983 seed was allocated from the state seed fund yearly to sow over 15 million hectares of spike and pulse crops and practically the entire area of corn for grain, silage and green fodder with a consideration of catch crops, i.e. 22 million hectares.

In order to process, store and sell quality and hybrid seed being supplied for state resources 988 specialized grain-reception enterprises have been secured, including seed-processing plants, shops and lines preparing about 2 million tons of conditioned seed per month. In 1981-1982 new seed-cleaning shops were introduced into operation with a total capacity of over 350,000 tons per season. The technical reequipping of seed shops is being carried out. During the last 3 years about 3,000 units of new seed-processing equipment have been introduced. New methods have been worked out and are being introduced, particularly as concerns having plants utilize film-forming disinfectants for corn seed. Experiments with this method, conducted by the Dnepropetrovsk VNII of Corn showed that field germination of seed increases by an average of 18 percent and productivity--up to 24 percent.

Unfortunately, the effectiveness of the work of enterprises with seed decreases sharply as a result of the fact that each year state resources are replenished partially with seed of a lowered condition from a non-classified or mass reproduction. In many regions seed-farming enterprises do not fulfill the goals they are assigned and for this reason seed is procured from non-specialized kolkhozes and sovkhozes. This not only decreases the effectiveness of work of seed-processing enterprises but also limits the possibilities for obtaining a stable harvest of good quality grain and oil-bearing seed. All of this gives rise to the necessity of improving seed farming, which to a great extent pre-determines the increase in production of grain and oil-bearing seed in the country.

In addition to positive changes in the organization of the procurement of potatoes, vegetables and fruit in this area there are a number of shortcomings and violations. Plans for the procurement of melons, fruit and grapes as well as some types of vegetables were not fulfilled in 1983. Investigations in a number of oblasts of the RSFSR, the Ukrainian SSR, Moldavian SSR, Georgian SSR and Kazakh SSR revealed numerous instances of untimely and low-quality harvesting of vegetables and fruits. All of this resulted in great losses and had a negative effect on procurement level. In addition, procurement organizations and processing enterprises sometimes delayed the reception of fruit and vegetable products from enterprises. This happened in Gorkiy, Moscow, Vladimir, Tambov, Orenburg, Kuybyshev and Alma-Ata oblasts, Krasnodar Kray and the Dagestan ASSR.

Fairly significant volumes of potatoes and fruit and vegetable products have been put into long-term storage from the 1983 harvest. Checks show that in most trade-procurement organizations the preservation of stored products is achieved. At the same time on many bases of the systems of the USSR Minplodo-ovoshchkhоз [Ministry of the Fruit and Vegetable Industry], the USSR Ministry of Trade as well as Tsentrrosoyuz [Central Union of Consumers' Societies] in the cities of Kiev, Karaganda, Kursk, Saratov, Orenburg and several others instances of deteriorating potato and vegetable quality and their ruin have been uncovered.

There are many shortcomings in the organization of procurement of potatoes, fruits and vegetables, especially in the reception of these products directly in their places of production. This progressive method of procurement is being introduced extremely slowly. In 1983 only 10 million tons, or 24 percent of the total volume of delivered products, were received directly in kolkhozes and sovkhozes.

Last year plans for the procurement of livestock products were fulfilled, but this is no reason to be content. In meat procurement 27 percent of enterprises turned out to be in debt to the state for last year; in milk production--almost every fourth enterprise. They underproduced about 1 million tons of livestock and almost 1.5 million tons of milk. In the Uzbek SSR plans for the procurement of eggs were not fulfilled, in the Kazakh SSR--for milk and in the Moldavian SSR--for livestock procurement. The question of receiving livestock and milk in the place of production and transport using vehicles belonging to the procurer is being dealt with extremely unsatisfactorily in the Georgian, Turkmen and Azerbaijan SSR's and in Uzbekistan work on this question has not even begun.

With the goal of successfully solving this problem in addition to other measures it would be expedient to have sufficiently powerful specialized transport (cattle trucks, milk trucks and others) and to concentrate it in procurement organizations. The Lithuanian SSR has some good experience in this. Here all specialized transport is concentrated in the enterprises of the republic's ministry of the meat and dairy industry. There are 195 drivers-receivers on the staffs of meat combines. Here property responsibility of meat combines has been established with regard to the untimely arrival of trucks in the enterprise. All work is done strictly according to schedule, which indicates not only the day but the hour as well. At the present time 88 percent of the enterprises submit livestock locally. In 1983 procurers received 70 percent of cattle and hogs directly in sovkhozes and kolkhozes.

Today, when favorable conditions have been created for the continued improvement of the production and procurement of livestock products, when there is more livestock and feed and when economic stimuli are in effect it is essential not only to preserve the achieved growth pace and the development of positive tendencies but also to focus attention on the overall cooperation of kolkhozes and sovkhozes to successfully fulfill 1984 procurement plans.

The workers of the mixed fodder industry of the USSR Procurement Ministry have great responsibility. At the present time within the total consumption of

concentrated feed mixed fodder made from the grain of state resources makes up about 50 percent, and in industrial poultry farming and the fish industry--90-95 percent. Practice shows that full-ration mixed fodder used in livestock raising complexes and poultry factories secures an increase in the average daily weight gain of 1.5-2 times; 20-30 percent less feed is used for animal production output and the time needed to fatten animals decreases by 30-35 percent.

The production of granulated mixed fodder is increasing. Its average annual volume is increasing by over 500,000 tons, and efficient utilization enables us to increase weight gain in animals by 8-10 percent and to decrease the expenditure of mixed fodder by about 6 percent. These feeds require less space for storage and transport. In order to improve the quality of mixed fodder an extensive network of zonal and republic laboratories has been created to implement controls over the quality of delivered raw materials and recipes. The use of computers for calculating recipes has become standard practice everywhere, which improves the balance of mixed fodder for all indicators of nutrition. In over half the enterprises the network of dosage and mixing of components operates automatically. All of this enables us to increase the effectiveness of producing mixed fodder.

An improvement in the work of mixed fodder enterprises facilitates a closer tie with agro-industrial associations. Thus, in the Estonian SSR at meetings of Agroprom [Agricultural industry association] there was an examination of questions relating to the future development of the mixed fodder industry; recipes and nomenclature for mixed fodder produced in the republic's enterprises are coordinated; enterprises are assigned to mixed fodder plants; and centralized transport is used more optimally. In 1983 this allowed the republic to fulfill the plan for the delivery of meat to the general union fund by 107 percent, of milk--by 108 percent and of eggs--by 144 percent. Firm direct ties between mixed fodder enterprises and poultry factories were established in Stavropol Kray. The delivery of mixed fodder proceeds rhythmically here on the basis of contracts that are concluded annually. The volumes and recipes for different types of mixed fodder are made more precise according to the needs of the broiler association.

Unfortunately, in many kolkhozes and sovkhozes we have not eliminated the force of inertia in thought, the lack of desire to penetrate deeply into the economy and to count expenditures for production output. This must be mentioned because little forage grain is being delivered to the state in exchange for mixed fodder with kolkhozes and sovkhozes. A significant portion is utilized for feed purposes with insufficient effectiveness in enterprises. In 1983 kolkhozes and sovkhozes were left with a significant quantity of grain from forage, pulse crops and corn, while during the last 2 years an insignificant quantity of this type of grain was delivered for processing into mixed fodder (in a system of exchange for mixed fodder). Meanwhile, the economic advantage of this measure for the enterprise is evident--the effectiveness of mixed fodder is 15-20 percent greater than that of forage grain; expenditures for the delivery of grain and shipment out of mixed fodder are fully reimbursed to enterprises by grain-reception enterprises.

The strengthening of economic ties of the branch with kolkhozes and sovkhozes is also facilitated by the expansion of building of mixed fodder enterprises on an inter-enterprise basis. During the current and 12th five-year plans on this basis it is planned to build plants that are earmarked primarily for the production of mixed fodder from the exchange grain of enterprises. This type of practice in building mixed fodder plants was developed mainly in the Baltic republics, the Belorussian SSR and a number of oblasts in the RSFSR. The skilfull, efficient and especially, economically-based use of the potential of the state's mixed fodder industry will facilitate an increase in livestock production output and the fulfillment of procurement plans. This will enable us to improve supplies of valuable food products to the country's population.

In accordance with the decisions of the May 1982 Plenum of the CPSU Central Committee and with the goal of improving economic interrelations between agriculture and other branches of the national economy the state has developed a system of measures that are directed at increasing the production and procurement of high quality agricultural products and raw materials. There has been an increase in the responsibility of organizations that service kolkhozes, sovkhozes and other agricultural enterprises and organizations in regard to increasing the production and procurement of agricultural products and to the quality and schedule during which operations and services are completed. There has been a strengthening of the interest of enterprises and organizations that service kolkhozes and sovkhozes and of procurement enterprises and organizations with regard to the achievement of high final results and the growth of economic effectiveness in agricultural production output. A proposal on the order for concluding and fulfilling contractual agreements for agricultural products was worked out and confirmed; it regulates the relations, including economic, between kolkhozes, sovkhozes, organizations and enterprises which are involved in the procurement of agricultural products as well as typical agreements that determine the rights and obligations of parties.

The new proposal foresees a strengthening of the responsibility of parties with regard to the non-fulfillment of contractual obligations. It is called upon to facilitate an improvement in the organization of state procurement, in the fulfillment of plans and contractual obligations, in the sale to the state of the necessary agricultural products by enterprises, in strengthening cost accounting, in improving the role of contracts and in securing the proper evaluation of quality of agricultural products. In particular, the size of sanctions placed on procurement organizations which tolerate the incorrect determination of quality, quantity or payment for products coming from kolkhozes and sovkhozes has doubled. Increased sanctions have also been instituted for the untimely payment of enterprises for products they have delivered; fines have been doubled for failure to provide packaging material.

Contractual agreements foresee the stimulation of sales of agricultural products to the state via monetary supplements as well as countersales of mixed fodder and oilseed meal to kolkhozes and sovkhozes. In 1982 and 1983 alone over 17 million tons of mixed fodder were allocated for these purposes.

For 1983-1984 supplements have been established to procurement prices for agricultural products sold to the state by unprofitable and low-profit kolkhozes and sovkhozes amounting to up to 75 percent of the procurement price. In 11 months of 1983, according to preliminary data, over 8 billion rubles of such supplements have been paid out for all types of agricultural products. In addition, all expenditures related to the transport, expediting and unloading of products are carried by the procurer. In 1982 state expenditures for the shipment of grain and oil-bearing crops and the seed of grasses and grass meal equalled 176 million rubles.

An improvement in the economic relations between procurers and agriculture will also be facilitated by the fact that the main indicators in evaluating the operations of procurement enterprises and organizations are the fulfillment of the state plan for the procurement of agricultural products and raw materials, growth in the volume of procurement as compared to the level reached during the preceding 5 years, securing the preservation of procured products, timely processing and delivery to the consumer in a wide assortment and with good quality and a decrease in expenditures for the procurement, storage and processing of products. Consequently, the responsibility of procurers is increasing with regard to the final results of agricultural production. This will undoubtedly significantly increase the activeness of all procurement enterprises and organizations and will force them to seek out and find new ways to fulfill plans for the procurement of grain and other agricultural products in the assigned quantity and assortment and with high quality.

At the end of January of last year the Politburo of the CPSU Central Committee, after receiving information about some questions related to the development of agro-industrial associations, indicated that in assimilating the new style of production management a special thrust had to be made to increase the responsibility of kolkhozes and sovkhozes for the fulfillment of state plans related to the procurement of agricultural products. This means that the state plan for the procurement of agricultural products presented to enterprises must be fulfilled strictly according to the indicated quantity, quality and assortment.

In recent years in addition to the intensive struggle to increase the procurement of grain and oil-bearing crops the technical base for the storage and processing of grain has developed at a rapid pace. New and large elevators were built on a large scale in all union republics. This was done with greatest force in the main zones of commodity grain production--rayons of the RSFSR, the Ukraine and Kazakhstan--from which 95 percent of the grain procured from the country's kolkhozes and sovkhozes is delivered to the state. A powerful technical base has been created which enables workers to receive all grain without limitations of moisture content and weed infestation, to dry and clean it on schedule and to place it in modern grain storage facilities for long-term storage and the planned supply to processing enterprises of the flour milling and mixed fodder industry. Today grain reception enterprises have about 6,000 grain dryers, 21,000 stationary truck unloaders, over 7,000 mobile truck unloaders, about 10,000 truck scales and 6,000 units for loading grain into railroad cars. Existing capacities are capable of receiving over 7 million tons of grain and drying no fewer than 3.5 million tons.

"There is deep satisfaction," said the General Secretary of the party's central committee, comrade K. U. Chernenko, at the extraordinary Plenum of the CPSU Central Committee, "in the great response by the country's labor collectives to the call of the December plenum to increase above-plan labor productivity by 1 percent and to additionally decrease costs by 0.5 percent. For all branches of the agro-industrial complex this is a priority goal today. Procurement enterprises and organizations also have great reserves at their disposal."

The fulfillment of these goals by the enterprises of the USSR Procurement Ministry will enable the branch to increase production output by a total of over 163 million rubles, to decrease its cost by 76 million rubles and to decrease turnover costs by over 10 million rubles. In its time 378 truck sample selectors were installed to increase labor productivity and to decrease the number of workers in grain reception points. This allowed us to free up to 1,000 sighters who selected seed samples from trucks. The introduction of the new method in the remainder of grain reception enterprises will enable us to free more than a single 1,000 workers, to accelerate the process of sample selection and to decrease idleness in trucks involved in transporting grain.

A large reserve for increasing labor productivity and decreasing costs is progressive methods for moving grain from the threshing floors of kolkhozes and sovkhozes according to hourly schedules. In 1983 they were used to deliver grain to over 1,200 elevators and grain reception enterprises. In the RSFSR almost 80 percent of the procured grain arrived in elevators according to an hourly and centralized schedule. Practice supports the fact that this method of shipping grain allows us to eliminate idleness in trucks and to decrease the need for them by 20-25 percent. Specialists have calculated that by delivering 1 million tons of grain according to hourly schedules over 300,000 rubles are saved and that the processing capability of elevators and consequently labor productivity increase by 25-30 percent with the same capacities. The implementation of this progressive measure enables us to more economically utilize resources for the development of the material-technical base, eliminates the forced idleness of combines due to the shortage of transport vehicles, foresees the collection of grain from the threshing floors of enterprises and decreases its losses. This method of grain shipments has been widely introduced in Krasnodar Kray, Saratov, Kuybyshev, Tselinograd and Odessa oblasts and many other regions in the country.

In the interest of the matter at hand the universal introduction of this progressive method is required, which will provide the opportunity to significantly increase the effectiveness of utilizing trucks and equipment in grain-reception enterprises. Under conditions in which large capacity trucks and railroad cars are used to ship grain it is essential to accelerate the manufacture by machine-building enterprises of highly productive technology for loading grain and to supply it to kolkhozes, sovkhozes and grain-reception enterprises. The D-565 grain loader, which has recommended itself in a positive way and which has a productivity that is triple that of other brands used (the KShP-5 for example), is manufactured in an extremely limited quantity; grain reception enterprises receive a few of them, but kolkhozes and sovkhozes have practically none at all.

During the current five-year plan extensive work is being done to develop the flour milling industry and to reequip it on the basis of utilizing highly productive milling equipment. In 1983-1990 it is planned to introduce into operation a number of new flour-milling plants, including those equipped with highly productive equipment. Enterprises with such equipment will effect a sharp increase in the effectiveness of grain use and an increase in the output of flour of the best quality to 75 percent of the total instead of the 22 percent average for the system using the old equipment. Labor productivity increases sharply and a considerable savings in production costs is achieved. Two plants in the cities of Belya Tserkov' and Nepolokovtsy having such equipment are already in operation. They meet the modern level achieved in world practice.

There are plans for an extensive program of technical reequipping of elevators with new highly productive equipment. It will double the growth of productivity in the loading and unloading of grain storage capacities. A great deal of attention is being given to loading-unloading and storage operations in which manual labor is still used. This will allow us to free a significant number of workers.

Measures are being taken to introduce progressive forms of organization and reimbursement of labor and to develop technical progress in the flour milling-groats, mixed fodder and elevator industry. This facilitates an increase in the effectiveness of utilizing grain and other raw material resources and enables us to secure the stable fulfillment of plans for the production of bread products. In 1983 the brigade form of labor organization encompassed 62 percent of the industrial workers within the USSR Ministry of Procurement; of these 59 percent are working according to standard contracts. Half of industrial production was produced by enterprises working according to the Shchokino method.

At the present time procurers and labor collectives of industrial enterprises of the USSR Procurement Ministry, following the decisions of the 26th party congress and subsequent plenums of the CPSU Central Committee, are directing their efforts at the successful fulfillment of the state plan for the economic and social development of the USSR in 1984 and at further improving the administrative mechanism and the forms and methods of procuring agricultural products.

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## AGRO-ECONOMICS AND ORGANIZATION

### ESTONIAN OFFICIAL RESPONDS TO ITEM ON COLLECTIVE CONTRACT

Tallinn SOVETSKAYA ESTONIYA in Russian 5 May 84 p 2

[Article by A. Sirendi, deputy chief of the Main Planning and Economic Administration of the ESSR Agricultural Industry: "Choosing the Way"; Reference article from SOVETSKAYA ESTONIYA, 3 Feb 84, was published in JPRS-UAG-84-007, 14 Mar 84, p 42]

[Text] In publishing the article of the scientist M. Tamm, "Cost Accounting--The Way to Intensification," on 3 February 1984, the editorial staff invited its readers to an open businesslike conversation on the reasons why the collective contract is being introduced so slowly in the kolkhozes and sovkhozes of the republic and on the problems being faced by farms in changing to this form of organization and labor motivation. Today we are publishing the address of A. Sirendi.

Esteemed readers, we await your opinions, conclusions and suggestions.

We have some idea of the principles of contract work, its basic forms and methods. The first stage in the incorporation of the collective contract ended successfully and the experience of its pioneers now belongs to all of us. The first generalizations have been made, as have precise recommendations. For example: "the recommendation on the organization of mechanized cost-accounting subdivisions with the payment system of job contract plus bonus and a time-rate advance in plant growing (collective contract)," prepared by scientists under the guidance and direct participation of specialists of the USSR Ministry of Agriculture. Thus no one will dare to cite a lack of experience. But by no means everyone has sufficient direct personal experience in working according to the new method. But there is no way around it. That is equivalent to learning to swim on dry land, without plunging into the water. And if the principle is clear, one should proceed to act, avoiding a simple copying, a mechanical transfer of the experience of others to different conditions.

The development of the brigade contract is seen most graphically in the dialectical relation of the individual to the whole. It is possible to discover a number of common features in all manifestations of the brigade contract, but each of them has its own characteristics, ties and conditions peculiar to it alone. The diversity of forms and the freedom to choose them make it possible to apply general principles to all separate concrete circumstances and to find an optimum variant. One should thus create not just any contract team but a concrete labor collective with overall goals and over-all interests. It is essential to find the most nearly optimum operational variant. For even isolated shortcomings in the organization of the brigade contract can lead to a negative attitude, excessive caution or even to the fear of new forms. All of this complicates the process of their dissemination even within a single collective, and only a careful investigation of the reasons for failure can help to restore the previous enthusiasm.

Contract brigades are not groups of people with narrow production interests; a brigade is properly organized only when it cements the collective and is an organic structural unit. Integrity and unity, for example, may suffer in the event that some group opposes itself to the interests of the entire collective, merely shielding itself behind a single order. And the damage inflicted on a smoothly working team collective is far from harmless when its work is paid for not on its merits but based on team achievements, when the shortcomings of others are covered up and when those who have nothing to do with successes receive bonuses. Consequently, everything must be outlined in detail in the collective contract and both signatory parties must fulfill this agreement to the letter.

Unfortunately, the working out of the juridical side of various forms of the team contract is being delayed excessively and a number of vague points are showing up. And here one cannot justify all personal initiative and the contract itself may simply contradict existing legislation or departmental acts. Attempts to force new content into an old framework or to adapt new types of economic relations to old and incompatible regulations curb production growth and the assimilation of innovation.

We will present a concrete example with the reservation that we will not give the name of the enterprise, because the "heat" may be put on its managers for deviating from the established order. The cost accounting department of a sovkhoz comprised of 80 people operated with such good results in 1983 that according to the agreement, it should have received R40,000 in bonuses. No one had any doubts that these people deserved this bonus. But according to the standards in effect, the enterprise had the right to transfer only R70,000 into the material incentive fund for the entire collective, and this sum was essentially expended within 1 year. And the RAPO [rayon agro-industrial association] had to find a way to allocate resources from centralized funds.

Or another example: in the cost accounting department, vehicle transportation was better organized, unnecessary trips were eliminated, etc., so that there

was no work for the drivers. It was well that the drivers took it upon themselves to find other work. Otherwise, it would have been very difficult to do that under the system provided by law.

Agriculture has its own specific characteristics in which calendar periodicity does not correspond to the seasonal nature of production. From the production standpoint, different periods are not equivalent, whereby it is not always possible to forecast their significance precisely. Biological rules influence the production process, since we are dealing with living organisms. The weather is an influence, since production essentially takes place in the external environment. In addition, processes are basically irreversible here and one cannot correct a mistake once it is made. For example, a reduced harvest because of a delay in planting cannot be made up for either through additional fertilizers or through careful weeding or through the elimination of harvesting losses. The production cycle in agriculture is long and interrelated. Production results therefore depend upon consistency in work, since a mistake, once made, can nullify previously favorable conditions. A rural worker must strive for the maximum at each stage.

In his article, M. Tamm described the influence of weather on results. It turns out that under favorable conditions, wages (bonuses) may be undeserved, and under poor weather conditions, an outstanding effort may not be appreciated according to its merits. By the same token, the risk factor in agriculture is greater than in industry, since the result depends not only upon the work force, equipment, raw materials and other materials, but also upon the amount of warmth, light and moisture received by field crops. And although this is known, it will be wrong to pay bonuses for maintaining the yield level in unfavorable years. One must not fail to consider risk in evaluating the work of agricultural brigades. In practical terms, this is very difficult to do and the result is that it is necessary to abandon the principle that additional incentives for brigades must depend upon additional results.

There are certain differences in the rural collective contract in both the territorial and functional senses. Potato growers, for example, grow their crops in different fields every year. Consequently, their attitude towards fertilization and soil fertility is a matter of their conscience and is not directly related to economic motivation. A lessee relation can be averted in the agreement. But for precisely that reason, it is thought that the entire crop rotation or a territorial unit needs to be assigned to a team. In addition, a functional team has an unequal workload during the course of a summer. The current structure of sown areas was developed based on an even workload of an entire farm throughout the year. Potato-growing brigades need help in spring and fall, and in summer they themselves help other brigades. The territorial version of brigade creation has advantages and shortcomings of its own. The brigades must cover a department or all jobs, including those that do not produce any direct profit. In its resolution, this version is simpler, since no changes are required on the organizational side. It is necessary only to unite the principle elements of the contract with the existing organizational structure.

In drafting the contract, one must consider to what degree brigade autonomy is to be controlled by the farm. As a rule, there are no difficulties or particular disagreements here. On certain occasions, the enterprise management participates in assigning duties within the team as well as in providing for labor discipline. The basis of brigade discipline is the self-discipline of each brigade member. And therefore, the brigade contract is most effective in those enterprises where management cannot provide for labor discipline through traditional methods and where there is a great shortage of manpower. In enterprises where there is sufficient manpower, deficiencies in the organization of labor are not as visible, since the work is completed on time. On such farms, the effectiveness of the contract is expressed in an increase in labor productivity but in a somewhat different aspect. The brigade performs the work with fewer people.

To be successful, it is important for the brigade collective to be cohesive. The workers know each other and they know who can do what. The brigade is put together gradually, and the question of the acceptance of each new member is decided by the already-formed collective. In rural areas, they have become accustomed to the fact that everyone has an opportunity to join a brigade. Therefore, the selection principle is not the main thing here but above all it is participation in the work that is valued. Hence, the wage and bonus principle becomes especially important. If this is done right, then the brigade works well.

It is impossible to create a good brigade through administrative methods, although the administration can show initiative. In agriculture, it is especially important that everything be specified at the very beginning of the year, when plans are drawn up and the accounting can be adapted to requirements. Brigade plans must correspond to the plan of the entire enterprise. Not a single brigade should be in a privileged position, and the tasks must correspond to the means. All supplementary wages of brigade members should depend on the attainment of additional results. And in this sense, the brigade method is more difficult to introduce in those enterprises whose indicators have, as they say, reached the "ceiling." Examples are when the productivity of milch cows and the daily weight gain of fattened animals have reached their genetic potential. Here it is appropriate to mention the experience of the "Luun'ya" family farms, where there was substantial improvement over the previous level because of the enthusiasm and material motivation of workers.

The creation of a brigade is a crucial matter, but that is only the first step. All of the possibilities of this method must be directed to production growth, to increasing the well-being of people and to instilling a feeling of collectivism and an honest attitude toward labor. There are various ways to reach the goal, but it is necessary to choose the best among them, one's own way.

9746  
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## AGRO-ECONOMICS AND ORGANIZATION

### FOOD PROGRAM DEVELOPMENT, APK EFFECTIVENESS ASSESSED

Moscow VESTNIK STATISTIKI in Russian No 5, Apr 84 pp 3-5

[Article: "A Decisive Factor in Increasing the Well-Being of the People"]

[Text] The USSR Food Program is a very important component of the party's economic strategy in the current stage. In both the economic and political spheres, this is the central problem of this decade.

The All-Union Economic Conference on APK Problems was devoted to the first results of the work to implement the Food Program and to related topical questions of vital importance for the country. In opening the conference, Comrade K. U. Chernenko, general secretary of the CPSU Central Committee, stressed that "...our party views the concern for developing agriculture not only as an economic but also as a paramount social and political task.

"Our approach is that a highly developed and effectively functioning APK is an essential condition for the further increase in the physical well-being of the nation and for the improved efficiency of the country's entire national economy."

The party and the Soviet Government constantly keep sight of the problems of developing agricultural and related sectors. Enormous sums of capital investment and vast material resources are being allocated for this. Much attention is being paid to consolidating the economy of kolkhozes and sovkhozes, to the social development of rural areas and to improving the organization and economic incentives of the labor of workers. As a result, production and purchases of agricultural output are increasing, as are the level and balance in the consumption of food products. And the task today is to reach higher limits in producing grain and industrial crops and in supplying the population with food products, above all meat, milk, fruit and vegetables.

The principal way to carry out what has been specified is to accelerate the transition of agriculture to the path of intensive development, to increase significantly the yield from the potential that has been at kolkhozes and sovkhozes, to improve in a fundamental way the operations of agroindustrial associations and to increase the level of all economic work.

The 2 years since the May (1982) CPSU Central Committee Plenum have confirmed very convincingly the correctness of the direction chosen for the gradual putting into practice of the country's Food Program. The results of the implementation of the Plenum's decisions are already being felt.

Gross agricultural production last year increased by 5 percent over 1982 and reached almost R134 billion. The greatest increase was 11 percent in Kazakhstan. It was 10 percent in the Kirghiz SSR, 9 percent in Belorussia and Estonia, and this increase amounted to 6 percent in the RSFSR. All republics fulfilled the plans for the procurement of basic types of production in animal husbandry. The increase for the year amounted to 1.5 million tons for live weight of meat, 5.4 million tons for milk and 1.8 billion more eggs were produced. More grain, potatoes, sugar beets and vegetables were harvested than in 1982 and the harvest of cotton and flax was satisfactory. The enterprises of the meat and dairy industry had production of R1.4 billion above the plan. The workers in the food industry and a number of other APK sectors worked rather well.

The economic indicators of kolkhozes and sovkhozes improved. The level of overall profitability reached 21 percent. Without considering the increase in purchase prices and surcharges on these prices, profit increased by R7.4 billion in 1983 and totaled by R23.3 billion. The rate of social transformation in rural areas accelerated.

At the same time, as was shown at the conference, the overall situation is not satisfactory. For the first 3 years of the Five-Year Plan, agriculture fell considerably short in its deliveries of grain, livestock and poultry, milk and other output. There were serious shortfalls relative to the plan in Altayskiy Kray as well as in Yaroslavl', Kursk and a number of other oblasts and autonomous republics. And this occurred under an increase in the resource potential and the means for cultural and domestic construction. Local soviets, agroindustrial associations, managers and specialists must take all measures to make up for what has been neglected and to eliminate lags during the remaining 2 years of the Five-Year Plan.

The realization of the plans of the Five-Year Plan and the Food Program requires increased attention to the intensification of production, especially in the direction of increasing output from existing and new resources. The principal task here is to improve the utilization of the enormous production potential of agriculture and other APK sectors, to strengthen the weak links, to provide for optimum use of existing resources and to improve their structure.

It is essential to carry out a complex of measures directed toward the successful implementation of the tasks involved in the sale of grain to the State, and not just for the overall volume but for each crop. It is also necessary to increase the production of strong and hardy wheat varieties. It is important to consolidate and develop the positive tendencies now apparent in animal husbandry.

The conference paid particular attention to the development of agricultural machine building. Large capital investments have been allocated for this in recent years. A certain amount of success has been achieved. However, the Ministry of Tractor and Agricultural Machine Building and the Ministry of Machine Building for Animal Husbandry and Fodder Production did not develop the production of a number of models of new equipment and the production of machine attachments for high-power tractors is increasing only slowly. The introduction of new capacities is often delayed.

The more efficient utilization of land, the basic means of production, remains crucial today. On many farms, however, scientifically-based farming systems are being assimilated weakly, agrotechnology is being violated and crop rotations are incorporated slowly. Reclaimed lands are still not being utilized effectively enough. In recent years, funds went mainly into new reclamation construction, whereas inadequate funds were allocated for the reconstruction and proper maintenance of existing systems. Here bureaucratic inertia and the diversity of interests are still being felt.

The conference devoted much attention to the problem of the intensification of animal husbandry. It was emphasized that the productivity of this sector is still low and that many farms are not paying as much attention as they should to consolidating the fodder base and are becoming absorbed in the construction of large-scale complexes. Experience shows that the most rapid increase in the production of meat, milk and eggs can best be achieved by increasing the productivity of livestock and poultry. Constant attention should be directed to developing the auxiliary farms of enterprises and the population.

The party is consistently and steadfastly working to improve the management and operational mechanism of APK sectors. For this purpose, favorable conditions have been created generally, and the economic levers of management are being used increasingly in production. It is understandable that this is only the start of difficult work to improve APK administration. In some places, however, economic methods of management are still being applied weakly, and often they lose sight of such important aspects of economic consolidation as the correct relationship between the rates of growth of labor productivity and its payment, the return on investments, the utilization of funds and production quality. Some managers and specialists are taking their time introducing cost accounting and often cost accounting is applied formally and its basic principles are violated.

At the present time, rural areas have everything that is needed for all farms to increase their production and consolidate their economic operations. It is only necessary to use State help skillfully, especially the surcharges on purchase prices for those farms that are lagging behind. And one of the crucial tasks is that of having these farms pay for themselves and fulfill their planning targets. As was said at the conference, "it is important to have things so that people can clearly see the final goal and strive for it, sensing the direct relationship between their labor and its payment. Many years of investigation have shown the high effectiveness of the collective

contract. It is important to continue to pay close attention to it and to utilize it actively in practice."

Rayon agrindustrial associations [RAPO's] have been operating in the country for almost a year and a half. Most of them have concentrated their attention on the most important economic problems and are ironing our intersectorial ties. The associations have been granted enough powers to carry on their business effectively. Meanwhile, by no means all RAPO's have been sufficiently clear in explaining the nature of the reorganization, their rights and possibilities. There is still a lack of initiative and enterprise.

The question of the elimination of negative factors in the interrelationships of the enterprises and organizations of APK sectors with kolkhozes and sovkhozes is especially pronounced. The expediency of additional measures for a balanced development of agriculture, processing capacities and production transport was established. The necessity for the active participation of Union authorities--Gosplan, the Ministry of Finance, Gosbank, Goskomtsen [State Committee on Prices] and Goskomtrud [State Committee for Labor and Social Problems]--in improving the economic mechanism and in managing agriculture and other APK sectors was pointed out.

Under the new conditions of economic operations, when intensification is attaining crucial importance and when the achievements of scientific and technical progress are being assimilated more rapidly into production, the role and responsibility of the scientific-research organizations of the USSR Academy of Sciences and the Academy of Agricultural Sciences imeni V. I. Lenin is increasing significantly.

In the course of carrying out the Food Program, higher demands are being placed on the primary party organizations, which make up the political nucleus of rural labor collectives. It is important to put into practical effect the orientation of the CPSU Central Committee for a clearer delineation of the functions of party and soviet authorities.

The conference participants assured the Leninist CPSU Central Committee that the APK workers, along with all Soviet people, will apply all of their efforts, knowledge and experience toward the successful implementation of the decisions of the 26th Party Congress and the following Committee Plenums.

The State statistical authorities have already accumulated a certain amount of experience in studying new forms of organization and management in agricultural production. The statistical accountability of the agroindustrial association was confirmed (form No 1--agroindustrial association), constant statistical supervision of RAPO activities was established, and the results of the production and financial operations of RAPO's for 1983 are now being disseminated. But those are only the first steps. Ahead is serious work to improve and reduce reporting, to develop a wide range of methodological questions and a system of indicators that characterize all aspects of the work of associations.

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9746

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## AGRO-ECONOMICS AND ORGANIZATION

### AGRICULTURE MINISTER ON ECONOMIC, ADMINISTRATIVE PROBLEMS

Moscow SEL'SKAYA NOV' in Russian No 6, Jun 84 pp 3-5

Article by A. Iyelev, USSR Deputy Minister of Agriculture: "The APK and Its Economic Aspects"/

Text Slightly more than 2 years have passed since the May (1982) Plenum of the CPSU Central Committee, which approved the USSR Food Program. During this period, noticeable changes took place in agriculture throughout the country. Improvements were noted in the purchase prices, material incentives and in the new methods for economic management -- these and other measures, developed by the Plenum, created favorable conditions for increasing production and strengthening the kolkhoz and sovkhoz economies. All of this promoted an increase in the labor activity of collectives and it opened up an expanse for socialist enterprise on the part of agricultural leaders and specialists.

As a result and despite the complicated climatic conditions experienced in 1983, success was achieved in increasing gross agricultural production compared to the preceding year by 5 percent. Labor productivity was increased by 6 percent. For the first time in a period of 9 years, all of the republics coped with their plans for procuring the principal types of animal husbandry products. This had a positive effect on the indicators of the processing branches.

Eighty five percent of the kolkhozes and sovkhozes completed last year with a positive balance. The profitability of agricultural production throughout the country was raised to 22 percent and the annual profit amounted to 24 billion rubles.

However, these successes in the agrarian sector give no cause for complacency. There are still many unresolved problems. During 3 years of the 11th Five-Year Plan, the state failed to receive considerable quantities of grain, meat, milk and other products, as called for in the planned tasks.

To discuss the vital problems associated with implementation of the decisions handed down during the May (1982) Plenum of the CPSU Central Committee and the country's Food Program -- such is the goal which the party's Central Committee assigned to the All-Union Economic Conference on Problems of the Agroindustrial Complex, which convened in March

A business-like, high principled and interesting discussion was held during the conference on a broad range of problems. But the central theme was the question concerning the efficient use of the logistical base which the kolkhozes, sovkhозes and other enterprises of the APK agroindustrial complex/ have at their disposal.

"Today a tremendous amount of production potential has been accumulated in agriculture and other branches of the agroindustrial complex" stated member of the Politburo and secretary to the CPSU Central Committee M.S. Gorbachev in his speech. "The priority task -- improving the utilization of all capabilities and resources, strengthening the weak elements, making optimum use of existing funds and improving their structure."

What forms the basis for such an approach to the work? Nobody can deny the fact that the kolkhoz and sovkhоз economies are being adversely affected by their inadequate logistical base and backwardness in the social sphere -- construction of housing, roads, schools and pre-school institutes and in the cultural-domestic services for the rural workers. However, these problems are being solved throughout the country and tremendous resources are being allocated for this purpose.

Meanwhile, the economic potential already available on many farms is not being utilized efficiently and the return being realized from large-scale investments is not equivalent to the expenditures.

Hence a requirement exists first of all for improving the economic mechanism and also economic operations at the level of kolkhozes, sovkhозes and other APK enterprises. For it is precisely here, at the lower levels, that the fate of our plans and the fate of the Food Program are being resolved. This is why paramount importance is being attached to the extensive introduction of true cost accounting procedures into their operational practice.

Cost accounting stimulates an enterprise and its subunits not only into comparing expenses against income obtained but also into actively developing and introducing technically sound norms and resource-saving technologies, raising the quality of output, maintaining accurate monetary accounts and achieving economies both large and small. In those areas where internal cost accounting has been introduced, all of the kolkhoz members, workers and middle echelon leaders join in an active search for reserves.

Cost accounting is acquiring special importance at the present time, with a large production-economic potential having been created in the rural areas and with a substantial increase taking place in the production volumes and, it follows, in expenses. Judge for yourself: a savings of only 1 percent would make it possible to reduce production expenditures by more than 1 billion rubles, fuel expenditures by 400,000 tons and electric power by 600 million kilowatt-hours.

The effectiveness of cost accounting is convincingly confirmed by the experience of leading farms. One can cite the example of the country's well known Nazarovskiy Sovkhoz in Krasnoyarsk Kray, the director of which, A.F. Veprev, spoke during the economic conference. This farm operates under natural-climatic

conditions which are typical of the zone in which it is located. It does not stand out in terms of capital supply. Yet the results here are considerably better than those of its neighbors. In 1983 the cropping power of grain crops at the Nazarovskiy Sovkhoz reached almost 42 quintals per hectare, whereas the average for sovkhozes in Nazarovskiy Rayon was slightly more than 26 quintals. An annual yield of 3,402 kilograms of milk is being obtained from each cow at the Nazarovskiy Sovkhoz and throughout the rayon -- 2,670 kilograms. The production cost per unit of output at the sovkhoz is 1.5-1.8 times lower than the average indicators for the rayon. The total profitability at the Nazarovskiy Sovkhoz was 176 percent, whereas the average for sovkhozes in the rayon only slightly exceeded 60 percent.

Each republic, oblast, kray and many rayons throughout the country have farms which are making skilful and efficient use of cost accounting procedures.

Unfortunately, we can also cite many kolkhozes and sovkhozes where cost accounting is being carried out only on a formal basis, on "paper" so to speak. Only this can explain the fact that in 1982, prior to the increase in the purchase prices, milk production at 82 percent of the kolkhozes and sovkhozes in Kalinin Oblast was unprofitable and the production cost per quintal of milk exceeded 40 rubles. Throughout the RSFSR as a whole, milk produced losses at 71 percent of the farms, in the Ukraine -- at 67 percent and in the Kazakh SSR -- at 57 percent of the farms. At the same time, more than 2,400 kolkhozes and sovkhozes throughout the country had milk production costs which were lower than 28 rubles per quintal and profitabilities on the order of 30-40 percent.

Why such a contrast? It is partially explained by different natural conditions. However the chief reason derives from the fact that some farms are constantly and thoroughly analyzing production operations, searching for more efficient solutions, introducing internal cost accounting and taking advantage of scientific achievements and leading practice, while other farms -- justify their inability to work and at times their mismanagement of operations by citing difficult conditions. But the country does not require justifications for high quality products. And not at any cost, but rather with minimal expenditures of labor, resources and material resources.

These requirements apply not only to the kolkhozes and sovkhozes. Cost accounting must permeate the work of all elements of the agroindustrial complex.

Following the May (1982) Plenum of the CPSU Central Committee, a great amount of work was carried out aimed at improving economic relationships between agriculture and its APK partners. But this mechanism has still not been organized completely. The procurement organizations, enterprises of the processing industry, Goskomsel'khoztekhnika and Soyuzsel'khozhimiya are still frequently attempting to improve their own economies at the expense of the kolkhozes and sovkhozes. At times, it reaches the point where the quality of the products being received from the kolkhozes and sovkhozes is lowered and direct miscalculations by the farms are tolerated.

There are those who maintain that we do not require cost accounting. Our agricultural partners must search for internal reserves and not devious means for acquiring kolkhoz and sovkhoz resources. The enterprises and organizations

of Sel'khoztekhnika, Sel'khozkhimiya, Sel'khozenergo, and the Poliv RPO /rayon production association/, in carrying out their contractual obligations based upon kolkhoz and sovkhoz needs, must find new and progressive forms for providing services which will ensure a reduction in the cost of such services and work carried out while simultaneously improving their quality. The enterprises of the processing industry must improve their economies by attracting additional raw material resources into the production process, implementing more thorough processing of the raw materials, improving the assortment and quality of the products and introducing waste-free technologies into operations on an extensive scale. Although difficult, this is nevertheless the only true path.

A strengthening of cost accounting principles in the work of kolkhozes, sovkhozes and also enterprises of other branches of the agroindustrial complex must be accompanied by an improvement in their operational-administrative independence. Cost accounting is incompatible with petty support and administration "from on high." It would seem that there are two opinions in this regard. However, the vicious practice still persists of the kolkhozes and sovkhozes being given numerous tasks -- with regard to sowing areas, cropping power of the agricultural crops, number of cattle and their productivity and other indicators which the farms are both authorized to and obligated to determine for themselves. Moreover, the kolkhozes and sovkhozes are often required to employ solutions which are far from the best.

Such an approach is in conflict with the very essence of cost accounting and it lowers the responsibility of the farm leaders and specialists for the final operational results and for fulfillment of the state plans. Only one conclusion can be drawn based upon the above: a firm and consistent policy must be followed aimed at developing creative activity and initiative and raising the independence of the labor collectives.

There can be no doubt but that cost accounting activity is reflected most completely at the kolkhoz and sovkhoz level, that is, at the primary level. But thought must also be given to disseminating the cost accounting principles "vertically" -- to the level of the agroindustrial associations. This would be of assistance in coordinating more closely the economic interests of RAPO's /rayon agroindustrial association/ with the farms and it would stimulate initiative, creativity and enterprise among the leaders and specialists at the rayon level.

The all-union economic conference devoted a great amount of attention to the problems concerned with labor organization and material incentives. This was quite proper and was dictated by the urgent agricultural requirements.

Roughly 2-3 decades ago, equipment was the weakest link in the "man - earth - equipment" system. Today the situation has changed: a modern industrial base has been created in the rural areas and the availability of machines to the rural workers has increased greatly.

Under these conditions, greater importance is being attached to the human factor: the attitude of people to their work and their interest in the final work results. Indeed, of themselves productive capital and new equipment are lifeless. In the words of K. Marks, "Live labor must encompass all things,

revive them from the dead and convert that which is only possible into genuine and active use values."

This is why improvements in labor organization and wages have become a priority task today. The solving of this task does not require great material expenditures, but experience has shown that tremendous advantages are to be gained therefrom.

This makes it doubly difficult to understand the position taken by those leaders who are slow in introducing progressive forms for labor organization and material incentives and direct their efforts towards "uncovering" additional capital investments and logistical resources.

In recent years, the required economic prerequisites have been created for converting over to the new operational methods: the wage rates and salaries have been raised repeatedly and the link between wages and the final work results has become stronger. Substantial changes were introduced in the conditions for issuing wages and bonuses in conformity with the decisions handed down during the May (1982) Plenum of the CPSU Central Committee. High production results were achieved by those farms which made skilful use of these favorable opportunities and introduced the new forms for labor organization and wages, particularly the collective contract. Their experience was examined and approved in March 1983 by the Politburo of the CPSU Central Committee. At that time, an all-union conference was held in Belgorod to discuss this problem.

Work concerned with introducing use of the collective contract throughout the country has been increased noticeably. Last year there were approximately 100,000 non-schedule collectives in field crop husbandry -- greater by a factor of two than the number during 1982. They cultivated agricultural crops on an area of more than 43 million hectares, or approximately 20 percent of the arable land. In animal husbandry, approximately 50,000 brigades were operating on the basis of collective contracts; their number had also doubled. And one very important fact -- in practically all areas, those brigades and teams which operated on the basis of contracts obtained better results last year than those collectives which utilized the old forms for labor organization and material incentives. For example, contractual collectives in Saratov Oblast obtained almost 19 quintals of grain per hectare -- this is three quintals higher than the average indicators for the oblast. Each hectare of forage crop managed by contractual brigades and teams furnished almost one and a half times more feed units. Allow me to cite an example. In 1983, 70 percent of the arable land in Belgorod Oblast was assigned to subunits which operated on the basis of collective contracts. The cropping power of grain crops on these areas turned out to be roughly 25 and that for sugar beets 20 percent higher than the yields obtained where piece-work was carried out.

Yes, more and more use is being made of collective contracts in the rural areas. But as is the case with the introduction of any innovation, this process is not taking place smoothly or without a hitch. There are difficulties, discrepancies and unresolved problems. Special importance is being attached, for example, to establishing the production norms correctly and to defining the wage fund. Attempts are being made to carry out this work in different ways. At times, the

production norms are lowered and this leads to overpayments and overexpenditures of the wage fund. Conversely, it sometimes happens that the norms are raised. This results in decreased material interest in those responsible for carrying out the work.

The introduction of a collective contract requires a reorganization of the entire intra-farm mechanism of a kolkhoz or sovkhoz. First of all, it will be necessary to truly organize intra-farm planning, distribute the production functions among the subunits in an efficient manner, convert all of them over to intra-farm cost accounting and organize bookkeeping and reporting. Assistance must be furnished to the labor collectives in finding efficient principles for distributing wages based upon the true contribution made by each worker, while avoiding wage levelling, selecting competent brigade and team leaders and defining the rights and forms for participation by the brigades and teams in administering production. The introduction of new forms for organizing labor must be accompanied by a strengthening of all economic, organizational and mass-political work and by an increase in the professional training of personnel.

Unfortunately, in some areas the attempts to carry out persistent, daily and laborious work in connection with the use of collective contracts are being replaced by excessive administration and at times simply by discussions. It should be remembered that we do not have in mind here a particular campaign, but rather a radical reorganization of the entire system of intra-farm economic relationships, with such organization being aimed not at intermediate but rather at the final results. By the end of this current five-year plan, the new forms for labor organization and wages must be the predominate ones.

This will require not only great and persistent practical work in the various areas but also the scientific working out of certain complicated problems. For example, let us take material incentives for contractual brigades and teams in the zones of risky farming. Here there are great variations in cropping power and, it follows, in wages. A requirement exists for closer coordination of the wages of the leaders and specialists with the final results.

It is now the second year that agroindustrial associations have been in operation in all areas throughout the country. Many of them have already become organic parts of the economic mechanisms of rayons and oblasts and are exerting an increasing influence on all aspects of APK /agroindustrial complex/ activity. However, as noted during the all-union economic conference, by no means are all of the RAPO's utilizing fully their rights and opportunities or the economic levers extended to them for influencing production operations. Some RAPO councils are being distracted to an excessive degree by current and particular problems of management, to the detriment of long-range problems of considerable importance for the development of a rayon's agroindustrial complex.

One such problem area is that of "adjusting" interaction among all elements of the APK. The RAPO's must define the role and place of each partner and organize the agricultural services in a manner so as to ensure that they take into account the needs and interests of agricultural production and serve as a reference point for the final result -- obtaining maximum quantities of high quality products with minimal national economic expenditures.

The speech delivered during an economic conference by the director of the Karasuk Dairy-Canning Combine in Novosibirsk Oblast G.I. Kozhanov is recalled. He stated that a dairy plant must provide the kolkhozes and sovkhozes with equipment for determining the fat content of milk and also other equipment. It must not wait for the farms to ship their own products, but rather it must transport it using its own equipment. And it must not simply organize centralized shipments as some are doing, but rather it must go to the farm, determine the quality of the product and accept it, while eliminating any possibility of a reduction in the quality or a miscalculation. The organizing principle of a RAPO must be manifested in such large and important types of work.

At the present time, a great deal is being said regarding a single engineering-technical service for a rayon. Exactly what is this? There are some who believe that the entire engineering service of kolkhozes and sovkhozes should be subordinated to Sel'khoztekhnika, in the belief that its manager is the deputy chairman of the RAPO Council for mechanization and electrification. It is believed that such a recommendation conceals an inclination towards administrative control methods. Is it really essential to know who is subordinate to whom? There is another important consideration -- the concentration and combining of the efforts of engineering subunits of all kolkhozes and sovkhozes, agricultural administrations, Sel'khoztekhnika and other enterprises and organizations of a rayon agroindustrial complex, for the purpose of providing technical support for production. As the leading enterprise in the engineering service of a rayon, Sel'khoztekhnika must prepare an all-round plan for engineering services based upon the needs of the kolkhozes and sovkhozes, with the degree of participation by all partners defined in this plan.

Such all-round plans, approved by the RAPO Council, must also be developed for agrochemical services for the kolkhozes and sovkhozes and also for land reclamation operations. They make it possible to concentrate the forces and resources and to avoid the use of a highly specialized approach to the work, by motivating the rayon services into furnishing practical assistance to the kolkhozes and sovkhozes rather than issuing commands to them.

Considerable rights have been extended to the rayon agroindustrial associations. For example, at their councils they approve the rates for the production services provided for the kolkhozes and sovkhozes. It must be recognized that not all of the RAPO's are making use of this efficient economic means. Here the question is not one of a farm paying 2,000-3,000 less rubles for services, although this is also of some importance. The chief concern is to use prices to exert influence on the plans of the APK partners, such that the required volume of agricultural work will be carried out with minimal expenditures of labor, material and financial resources.

The councils of many RAPO's are still making only weak use of such an important economic lever as planning. And indeed it is written clearly in the statute covering a rayon agroindustrial association that the volume indicators for service branches are included in production-financial plans only after they have been approved by a RAPO council. And nobody is authorized to change them.

The planning methods are in need of improvement. At the beginning of this year, a group of specialists from the USSR MSKh /Ministry of Agriculture/ and the RSFSR MSKh and also scientific workers from economic institutes analyzed the economic activities of 3,268 sovkhozes in 22 oblasts of the Russian Federation. It turned out that many farms had fulfilled their plans for output sales by only 40-60 percent. At the same time, there are sovkhozes which mastered one and a half to two plans. Certainly, this is partially explained by different levels of management. But miscalculations in planning also played a role here. The time is at hand for mastering the normative-resource method of planning. Serious thought must be given to this problem by both the practical workers and scientific workers.

Recently, I happened to pay a visit to Petrovskiy Rayon in Stavropol Kray. During a discussion with RAPO leaders, mention was made of the fact that some of their colleagues were complaining: they maintained that the RAPO did not have sufficient rights. "We are told to do the best we can with the rights that have been extended. The most important right is that we now can investigate the work of any organization of the agroindustrial complex in the rayon. And not merely investigate, but in fact we can even submit proposals for improving such work in appropriate instances. Earlier the specialists of the agricultural administration were not accepted by the raypotrebsovuz /rayon union of consumers' societies/, the transport organization or by the procurement specialists. Yet today they are inviting us."

The Petrovskiy RAPO has already succeeded in eliminating certain bottlenecks in the rayon economy, for example in connection with transport operations. There are many enterprises in the rayon center and each one has its own transport "pool." Some have 2-3 tractors and others have several trucks. The time is approaching for mobilizing transport for grain shipment purposes. And the problems are commencing: a machine breaks down, there is no fuel or there are not enough drivers. Each finds a reason for employing his own transport. The RAPO council studied the status of affairs thoroughly and resolved: to centralize the resources of all organizations having transport vehicles and to build a special repair department and a parking area for the vehicles. In order to obtain an enterprise pass, a driver completes several trips with a vehicle. Once the trips are completed, the vehicle is returned. Thus did they decide to correct the transport discrepancies in the rayon.

Certainly, every RAPO has a multitude of daily concerns and urgent affairs. They must concern themselves with these matters. But who should do it? The rayon agricultural administration and other branch services. I repeat that these same RAPO councils must concentrate their attention with the more important problems concerned with production development, improving the economic mechanism of the agroindustrial complex and the social reorganization of the rural areas.

Included among these tasks is the introduction of industrial technologies. They are already being employed extensively in the cultivation and harvesting of corn, sugar beets, sunflowers and other crops. The effectiveness of these industrial technologies is beyond question. However, their introduction into operations is not being carried out with the proper degree of skill in all areas, nor is full use being made of their potential in all areas. Moreover, owing to the unskilled and incomplete use of these industrial methods, some

farms are obtaining yields which are no higher than those being obtained from use of the conventional technology. The RAPO specialists are obligated to furnish the kolkhozes and sovkhozes with qualified assistance in investigating the reasons for this situation.

The same holds true with regard to the introduction of scientifically sound farming systems, developed for all of the country's republics and oblasts. In those areas where constant use is being made of these systems, the caprices of the weather have less effect and the yields during any year are higher than they are on farms where the scientific recommendations are being neglected.

Generally speaking, the introduction of scientific achievements is one of the most important concerns of the RAPO's. There can be no two opinions in this regard. However, various judgments are being expressed regarding the organizational forms for this work. The proposal has been made, for example, to create a special department in the RAPO's for introducing such achievements. It is not believed that this constitutes the essence of the problem. The operational style of the RAPO apparatus must be changed. All of the RAPO specialists must monitor the scientific and engineering innovations in their branch, publicize them and organize their introduction and not "inspect" the kolkhozes or sovkhozes while commanding the farm specialists, the qualifications of which quite often are no lower than those of "rayon workers" and their production even better in many instances. Unfortunately, it often happens that a RAPO specialist is judged on the basis of a temporary duty assignment: the more he travels about a rayon, the better he works. There is no need for proving that such an evaluation has clearly become obsolete.

There is still one other large problem standing before the RAPO councils: personnel training. Some RAPO's have already accumulated some interesting experience in this regard. In Karlovskiy Rayon in PItava Oblast, for example, training groups for machine operators have been created not only at SPTU's agricultural professional-technical schools/ and Sel'khoztekhnika, but also at several base farms and within a short period of time the kolkhozes and sovkhozes were fully supplied with the required numbers of tractor operators and other machine operators.

A speech was delivered during the economic conference on improving the training for farm leaders and specialists. Our VUZ's are producing fine technologists: agronomists, zootechnicians and engineers. But they are mastering in only a weak manner the skills required for organizing production and working with personnel. Beyond any doubt, improvements must be carried out in the work of the higher schools. But a loss of time would ensue if we were to wait for the institutes to reorganize. And why is it that the RAPO councils do not organize probationary training for young specialists at the best farms in a rayon? In this manner the specialists would not feel that they are nothing more than detached onlookers and they would be able to carry out definite administrative functions. I am confident that in such instances many farm leaders would not be able to complain that they have nobody to rely upon.

The economic is not an abstract concept. It is created, strengthened and improved by people and labor collectives. Their conscientiousness, initiative and business-like attitude serve to guarantee the successful fulfillment of all of our plans and the implementation of the party's decisions.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### MOSCOW INTERNATIONAL EXHIBIT OF AGRICULTURAL MACHINES, EQUIPMENT

#### Minister Describes Content of Exhibit

Moscow SEL'SKAYA ZHIZN' in Russian 20 May 84 p 2

Article by A.A. Yezhevskiy, USSR Minister of Tractor and Agricultural Machine Building: "Review of Equipment for Fields and Farms"

Text The Sel'khoztekhnika-84 international exhibit of agricultural machines, equipment and instruments will be held in Moscow from 29 to 7 June. In response to a request by one of our correspondents, the chairman of the exhibit's Organizational Committee and USSR Minister of Tractor and Agricultural Machine Building A.A. Yezhevskiy discusses this exhibit.

An international review of the best models of international agricultural machine building is being held in our country for the fourth time. Its chief purpose -- to provide a display of the latest achievements in the sphere of agricultural equipment, to develop scientific-technical and economic collaboration between the Soviet Union and foreign countries and to further improve and develop the production of machines for the fields and farms. Approximately 700 firms, enterprises and organizations from 26 countries and West Berlin are setting up expositions in Sokolniki Park and at Krasnaya Presna.

By tradition, the products of machine building enterprises of socialist bloc countries are well represented at such exhibits -- People's Republic of Bulgaria, Hungarian People's Republic, German Democratic Republic, Polish People's Republic, Socialist Republic of Romania, Czechoslovakian Socialist Republic and the Socialist Federated Republic of Yugoslavia. The international Agromash Society will also display its products.

Firms from Austria, Brazil, Great Britain, Italy, Canada, the United States of America, the Federated Republic of Germany, France, Japan and a number of other capitalist countries will also participate in this large-scale international review, which is held once every 6 years.

The Soviet exposition for the Sel'khoztekhnika-84 Exhibit is the largest and very impressive. Its twenty theme sections fully reflect the successes of

domestic tractor and agricultural machine building, machine building for animal husbandry and feed production, motor vehicle, construction and highway machine building and other branches of the agroindustrial complex.

Numerous materials and more than 1,000 displays make it possible to obtain a clear appreciation of the great amount of work being carried out in our country for the purpose of solving those economic and social tasks set forth during the 26th CPSU Congress and also for implementing the USSR Food Program.

Those problems concerned with implementing the all-round program of socialist integration and the foreign economic and trade relationships of the USSR with foreign partners will also be reflected on the stands. Two years have elapsed since the May (1982) Plenum of the CPSU Central Committee, which approved the USSR Food Program. Certainly the visitors, specialists and guests of the Sel'khoztekhnika-84 Exhibit are interested first of all in the question: what contribution is agricultural machine building making towards implementing the Food Program?

It bears mentioning that in the future the industrial collectives of ministries and departments will be required to develop and organize the production of more than 1,000 new and modernized machines. For the most part, this will make it possible to complete the all-round mechanization and introduction into operations, on a large scale, of an industrial technology for cultivating many agricultural crops and it will raise considerably the level of mechanized operations in animal husbandry and feed production. A great amount of work remains to be carried out and yet much is being accomplished today. One can become acquainted with the best models of new equipment at the Soviet exposition at the international Sel'khoztekhnika-84 Exhibit.

The products of many organizations are represented here: Volgograd and Minsk tractor construction associations, Kishinev and Tashkent tractor plants, Rostsel'mash and Gomsel'mash production associations, Dnepropetrovsk and Ternopol combine plants, Lyuberetsy Agricultural Machine Plant, Gorkiy and Kutaishi motor vehicle associations, Neftekamsk plant for automatic dump-trucks, scientific research institutes, GSKB's state special design offices for different fields and other enterprises and organizations.

The Soviet exposition illustrates the progressive movement of the branches of our industry along the path leading to scientific-technical progress.

During the years of this current five-year plan alone, approximately 200 highly productive agricultural machines have been created and developed for field crop husbandry, feed production and animal husbandry, including multiple-unit assemblies, heavy disk implements, precision drills, wide-cut self-propelled and pull-type windrow harvesters and other items of equipment. Flow lines and equipment for the post-harvest processing and storage of agricultural products are being produced and production has been ordered for new self-propelled feed harvesting combines, feed distributors and modern equipment for livestock and poultry farms. New and modernized tractors occupy a leading place in the Soviet exposition -- DT-175 caterpillar plowing tractors, class 0.6 tractors and self-propelled chassis, modernized T-150KM, T-150, MTZ-100/102

and T-90S tractors, a new modification for the MTZ-80 tractor, general purpose MTZ-142 row crop tractors with a power rating of 150 horsepower, feed harvesting combines, KAZ-4540 and Ural-5557 transport-technological diesel motor vehicle trains and other machines for land reclamation and irrigation.

At the Soviet exposition one will encounter machines which the kolkhozes and sovkhozes will begin receiving during the next few years. This includes the Don family of grain harvesting combines and equipment for the harvesting and post-harvest processing of potatoes, flax, cotton, vegetables and other crops. Visitors will also be interested in a grouping of machines for use with powerful tractors. A distinctive feature of these machines is their general purpose nature.

Goskomsel'khoztekhnika USSR will exhibit more than 80 types of equipment for use in the repair and servicing of machines.

With each passing year, the business-like collaboration between our enterprises and foreign firms is becoming stronger. Soviet foreign trade associations are exhibiting more than 200 different types of agricultural equipment.

Our scientific-technical and economic collaboration with fraternal socialist countries is strong and many-sided. It is being developed on a long term basis together with the all-round program for socialist economic integration and it encompasses almost all areas of agricultural machine building.

An entire series of agricultural machines of improved quality is well represented at the exhibit. These machines are distinguished by low expenditures of fuel, raw materials and other materials, the result of joint efforts by scientists and the labor collectives of various countries.

Beyond any doubt, the traditional international review of the latest models of agricultural equipment will attract the attention of many individuals. But it will arouse special interest among the agricultural machine operators, engineers, technicians and all field and farm workers.

#### Goals of Exhibit Explained

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 May 84 p 2

Article by A.A. Yezhevskiy, USSR minister of Tractor and Agricultural Machine-building: "Review of Equipment for Fields and Farms" /

Text The Sel'khoztekhnika-84 International Exhibit is opening in Moscow today. The leading firms, enterprises and organizations from 26 countries are displaying on its stands the latest achievements in the creation of machines, equipment and instruments for agriculture. In this article the chairman of the exhibit's organizational committee and USSR Minister of Tractor and Agricultural Machine Building A. Yezhevskiy discusses the purposes and principal trends of this review.

Our party's consistent program aimed at raising the welfare of our Soviet people and implementing the country's Food Program has confronted the creators of machines and equipment for agriculture with qualitatively new tasks. By 1990 they must develop and release for production purposes approximately 1,000 types of new and modernized equipment, which will make it possible to mechanize completely all of the principal operations in field crop husbandry and animal husbandry, implement progressive technologies and reduce output losses to a minimum.

A distinctive feature of this equipment will be its high efficiency. For example, the machines for field crop husbandry must serve to raise productivity by a factor of 1.5-1.8. The service life for tractors and engines must be increased to 8,000-10,000 hours and the service life for machines up to the first failure will be increased by a factor of 1.5-3. The production of new machines for animal husbandry and feed production will make it possible to lower energy expenditures and fuel consumption by 8-10 percent and it will raise productivity in feed procurement and storage operations by 30-50 percent.

A great deal has already been accomplished in the interest of carrying out these tasks. During the years of this current five-year plan alone, approximately 200 new and modernized machines have been developed and mastered for agriculture. A considerable expansion has taken place in the arsenal of technical equipment available for ensuring the successful operation of sel'khoztekhnika, for the transporting and storage of products, for the installation of roads and other projects in the rural areas and for land reclamation and land improvements. The best models of this equipment are being displayed on the stands of the Soviet exposition, the formation of which involved the participation of more than 240 enterprises, NII's /scientific research institutes/ and KB's /design offices/ of 19 ministries and departments.

One of the main areas of the Soviet exposition serves to acquaint visitors with the groupings and assemblies of machines used for soil-protective work and individual technologies associated with the cultivation of crops. Tractor equipment is represented by the new DT-175 machines of the Volgograd Tractor Plant, the T-150 tractor of the Kharkov Tractor Plant Production Association, the MTZ tractor family of the Minsk machine builders, the Kishinev T-90S tractor and others. Among their chief advantages -- considerable improvements in the working conditions of the machine operators. All of these tractors are equipped with non-vibrating cabines, cushion seats and mufflers.

The grain harvesting equipment is represented by modernized Niva and Yenisey combines and also by the new Don combines. These machines are making it possible to raise labor productivity sharply and also to reduce losses during the harvest period.

The attention of visitors to the exhibit was certainly drawn to the groupings of highly productive machines for procuring silage and haylage. Among them -- the Slavyanka mower-crusher, powerful self-propelled feed harvesting combines of improved cross country ability and large containers for transporting feed, which make it possible to procure silage and haylage under unfavorable conditions. A set of machines for procuring hay in ricks is arousing considerable interest; it lowers labor expenditures for the carrying out of

this work by a factor of 2.5. A special area has been set aside at this exhibit for the equipment used on dairy farms and at poultry factories and animal husbandry complexes.

Transport equipment necessarily plays an important role in the industrialization of agriculture. Over the course of the next few years, the motor vehicle builders must supply the agroindustrial complex with more than 70 new and modernized machines. A portion of them are on display at the exhibit.

Visitors to the exhibit will be able to acquaint themselves with various types of equipment used for the technical servicing of tractors, combines and other machines. This includes diagnostic equipment -- from simple units to complicated electronic systems for uncovering and correcting defects in tractors. A mobile unit for servicing 20-40 tractors and self-propelled chassis directly under field conditions is on display. A great amount of interest is also being displayed in modern equipment used for restoring and strengthening parts of agricultural equipment, using such methods as welding, surfacing and covering of surfaces. This also includes the use of laser technology.

In the interest of successfully solving the tasks assigned by our party, the creators of equipment for agriculture have always devoted special attention to studying international experience and to scientific-technical and economic collaboration with foreign partners. The advantages of this approach are clearly apparent when one studies our interaction with fraternal socialist countries. In particular, a number of machines were presented during the exhibit which, owing to joint efforts, are distinguished by improved characteristics and lower expenditures of fuel, raw materials and other materials. A special section of the exhibit is devoted to the work of the international Agromash Society.

An exchange of experience and further intensification and development of scientific-technical and economic collaboration -- this constitutes one of the chief goals of the Sel'khoztekhnika-84 International Exhibit. It is our hope that the meetings and discussions which take place alongside its stands will serve to strengthen international relationships, trust and the protection and strengthening of peace.

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## TILLING AND CROPPING TECHNOLOGY

### ZONAL FARMING SYSTEMS ADVOCATED FOR EFFICIENCY

Moscow ZEMLEDELIYE in Russian No 3 Mar 84 pp 11-13

[Article by G. Ya. Vorob'yev, deputy chief of the Administration of Grain Crops and General Problems of Agriculture of the USSR Ministry of Agriculture: "Accelerating the Assimilation of Zonal Farming Systems"]

[Text] In the decisions of the 26th CPSU Congress and the May (1982) CPSU Central Committee Plenum, the country's agriculture was given the task of providing for stable growth in the production of grain, fodder, industrial and other crops largely through an increase in their yield. The basic means of solving this complicated task is the assimilation of scientifically valid agricultural systems at the kolkhozes and sovkhozes.

Extensive and persistent work in incorporating soil-protecting farming systems is being carried out on the kolkhozes and sovkhozes of Stavropol'skiy Kray. This permitted a significant increase in the yield and total harvest and an increase in the quality of grain and other crops. Agricultural organs, kolkhozes and sovkhozes and scientific research institutes in Kuybyshev Oblast are working purposefully to introduce farming systems. On every farm here, concrete measures have been worked out and are being systematically implemented. In the oblast, administrators and specialists of all farms have been trained in questions concerning the assimilation of farming systems. The course of the work is examined systematically by commissions created in the oblast and rayon administrations of agriculture. As a result, the structure of sowing has been improved, the assimilation of crop rotations is being accelerated and progressive technologies for cultivating agricultural crops are being introduced. Last year, this made possible a significant increase in the yield and total harvest of grain crops and an over-fulfillment of the plan for grain sales to the state. The farming system here is becoming a means for the competent management of the industry.

Throughout the country as a whole, there has been a noticeable increase in work to complete the assimilation of crop rotations. This work is almost completed on the farms of the UkrSSR, the ESSR, Krasnodarskiy Kray and in Omsk, Belgorod and a number of other oblasts. The incorporation of crop rotations will provide not only for a correct alternation of crops and an improvement in the conditions for applying intensive technologies, but it will also significantly increase the effectiveness of fertilizers, pesticides

and the entire agricultural complex. A convincing confirmation of this can be seen in the experience of the sovkhoz "Gigant" in Rostov Oblast. In the years 1963 through 1968 here, there was a violation of correct crop rotations previously assimilated and, in particular, there was a sharp decline in the area of completely fallow land. And despite the significant increase in the use of mineral fertilizers and the introduction of new and highly productive varieties, the total grain harvest on the farm declined by 14 percent during those years, and the harvest of winter wheat, the basic grain crop, declined by almost one-fourth. When the farm corrected the error, introducing and assimilating new effective crop rotations with completely fallow areas, the grain yield began to increase rapidly, almost doubling in the following years and attaining an average of more than 30 quintals per hectare.

Unfortunately, in a number of places, farm specialists and managers still underestimate the significance of crop rotations as one of the most important factors in increasing farming efficiency. Otherwise, how can one explain the fact that on the farms of the AzSSR, for example, crop rotations have been incorporated in 20 percent of the fields compared to 33 percent in the MSSR and the KiSSR, 34 percent in the TaSSR, 45 percent in the ArSSR, 52 percent in the UzSSR, 39 percent in Kirov Oblast, 29 percent in Vologia Oblast, 27 percent in Novgorod Oblast and only 11 percent in Dagestan ASSR.

To a certain degree, of course, the delay in implementing this work on a number of kolkhozes and sovkhozes is explained by the need to correct and refine previously-introduced crop rotations in accordance with the requirements of new farming systems. It is therefore important not to delay the improvement of crop rotations. And a large role in this belongs to the specialists of planning institutes for land use.

At the present time, the necessity of rapidly finding a solution to the problem of protecting the soil against water and wind erosion as well as of maintaining and regenerating its fertility has become particularly acute. That is why every agricultural system assimilated on the farms must above all have a clearly defined soil-protection character. A good example in this regard is the development and successful assimilation of soil-preservation systems of farming in Kazakhstan, Omsk Oblast, Stavropol'skiy Kray and on many farms in the Ukraine, Moldavia and other republics. In 1982, soil-preservation cultivation without turning over the soil was practiced on more than 46 million hectares in the country. According to the estimates of experts, it is essential to increase this area to 100 million hectares in the next few years.

Shallow soil cultivation with non-mouldboard implements is effective in the Ukraine, the northern Caucasus, in the Volga region and in the Central Chernozem Zone, especially for winter crops. Its incorporation, however, is till slow. At the same time, it should be emphasized that minimizing soil cultivation is not a simplification of the technology of crop cultivation. On the contrary, it is a higher level of technology, requiring a corresponding reorganization of the entire agricultural complex and high-quality field work. Only in this event does a minimizing of soil cultivation have the proper effect. There is not sufficient special machinery for the

broad assimilation of efficient methods of soil cultivation on kolkhozes and sovkhozes. Machine builders still have a great debt to pay to farmers. The development and introduction of new progressive technologies must be carried out at the same time that new machinery is built.

In increasing soil fertility, foremost importance belongs to solving the problem of an adequate humus balance. The humus content of soils is still declining in many regions of the country. The basic means of preventing this process is to increase the use of organic fertilizers. There are opportunities for this everywhere. Above all, it is necessary to use fully the existing manure resources for fertilizer and to produce compost more widely using peat and household and industrial wastes. It is necessary to be seriously involved with the growing of cover crops. There is a good deal of experience in the large-scale production and application of organic fertilizers on many farms of Belorussia, the Ukraine and other republics. The maximum use of this experience is the urgent task of all kolkhozes and sovkhozes.

In thinking about tomorrow and about larger harvests, it is necessary to be concerned with the over-all improvement of fields not only through an increase in the application of organic fertilizers but also through the addition of lime and phosphates to acid soils, reclamation of salt lands, the rational application of mineral fertilizers, the elimination of weeds, an increase in the depth of the topsoil and the carrying out of technical crop work. In Belgorod, Vladimir, Khar'kov and a number of other oblasts, at the initiative and with the active participation of "Agricultural Chemical" associations, work has begun and is being expanded in the over-all improvement of fields. The effect of this work is very great and the harvest on fundamentally "repaired" fields increases by a factor of 1.5 to 2. This experience deserves the widest possible dissemination.

The fastest-acting means of increasing harvests is the efficient use of mineral fertilizers. The amount of these fertilizers applied to the soil increases every year and yet the cost recovery of harvests continues to be low on many farms, especially for crops of cotton, potatoes and sugar beets. Despite the fact that the effectiveness of using mineral fertilizers for grain crops is one of the highest, it still happens that almost half of their plantings are not fertilized. The use of fertilizers for grain crops is increasing very slowly in Kirov, Penza and Ternopol oblasts and in Altayskiy Kray. In the northwest, in the central economic zones and in the LASSR, the increase in the amount of fertilizer used for grain crops is not accompanied by a corresponding increase in their yields.

The inadequate cost recovery of mineral fertilizers is attributable to many causes. The primary cause is the incorrect relation of the nutritive substances in the fertilizers used. In many cases, an uneven distribution of chemical fertilizers on the field and other violations of agricultural requirements are permitted. In the Nonchernozem Zone, the inadequate effectiveness of fertilizers is related to the high acidity of the soil and the low rate of liming.

Through scientifically sound farming systems, it is planned to improve the management of seeds and to accelerate the introduction into production of new high-yield varieties and hybrids. In recent years, agricultural organs, many kolkhozes and sovkhozes and scientific research institutions have done much work in this direction. On the farms of the UkrSSR, the BSSR, the KaSSR, as well as in Voronezh, Volgograd, Kuybyshev, Ul'yanovsk, Omsk and Kurgan oblasts and in Stavropol'skiy and Krasnodarskiy krays, the relative proportion of rayon varieties increased to 95-98 percent, and there was a significant improvement in seed quality. The lagging behind in the selection and management of the seeds of corn, sunflower, perennial grasses and above all of alfalfa is being overcome.

The material and technical base of seed management is being consolidated, which permits a faster resolution of the questions concerned with its industrial application. The greatest successes in this area were achieved in Belorussia, Lithuania and Estonia.

However, there are still a number of shortcomings in seed management, particularly in Ivanovo, Kostroma, Orlovskiy and Gor'kiy oblasts, as well as in Khabarovskiy Kray and in Udmurtskaya ASSR, where a significant relative proportion of the grain sown is represented by nonrayon varieties. On many farms of the country, the demand is still not being fully met for the seed of legumes and perennial grasses. Seed quality remains low in many oblasts of the Nonchernozem Zone of the RSFSR. New high-yield varieties and hybrids are being introduced slowly on farms in the GSSR, the KiSSR, the TuSSR and the AzSSR.

Many farms of the scientific research institutes, BUZ's and tekhnikums are not fulfilling the plans for the production and sale of highest-quality selected and high-reproduction seeds, especially beans, vetch, lupine, alfalfa and clover. This applies mainly to the scientific research institutes of the Nonchernozem Zone of the RSFSR, the Scientific Research Institute for Agriculture in the Southeast, the Altayskiy Scientific Research Institute for Farming and Selection and the Mordovskaya and Lipetskaya Oblast Experimental Agriculture Stations.

The improved use of reclaimed lands plays an important role in increasing farming efficiency. In all zones of the country, there are farms where the planned productivity for irrigated and drained lands is reached and even exceeded. As a whole, however, the yield per reclaimed hectare is still low.

The principle reasons for this situation consist in the imperfect structure of sowing on reclaimed lands, in violations of the irrigation routine and in shortcomings in the structure of reclamation systems and their operation. Unproductive annual grasses are still being cultivated on a significant part of irrigated lands. At the same time, insufficient areas are sown in intensive crops such as alfalfa, corn, soybeans and others.

Important measures are those against weeds, diseases and pests affecting agricultural crops.

Herbicides are used more and more every year. In the 10th Five-Year Plan, as compared with the 9th, the area sown in grain and treated with herbicides increased by more than 30 percent. The corresponding area for sugar beets was 2.6 times as large and that of corn was 1.4 times greater. On many farms, however, the weed problem in the sown fields remains great. The main reason for this is the absence of an over-all approach to combatting weeds, as well as less attention to agrotechnical methods and the failure to observe the requirements of the technologies for cultivating crops. It often happens that the fall clearing of fields is late and is done without the preliminary loosening of the soil in the fields and the treatment of sprouting weeds with herbicides. There is an analogous situation in regard to the production of plants against pests and diseases.

The need for strict observance of the requirements of agrotechnology is now increasing substantially in connection with the mass incorporation of industrial technologies for cultivating agricultural crops, the effectiveness of which can be sharply reduced through even minor violations of technological discipline. Unfortunately, this need is underestimated on many farms where the yield from industrial technologies is low.

The assimilation of farming systems is not a one-time measure and not a campaign but constant and purposeful work by agricultural organs, kolkhozes, sovkhozes and scientific institutes to improve the management of the industry. This work requires a complex and creative approach, careful consideration of existing opportunities, precise planning and implementation of the corresponding measures.

The successful assimilation of scientifically well-founded farming systems depends upon the active participation of all partners of kolkhozes and sovkhozes in the agroindustrial complex. Therefore, the organizing role of the councils of agroindustrial associations is very important here.

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## TILLING AND CROPPING TECHNOLOGY

### MOLDAVIAN SUNFLOWER GROWING PROBLEMS, PROGRESS DISCUSSED

Kishinev SEL'SKOYE KHOZYAYSTVO MOLDAVII in Russian No 3, Mar 84 pp 23-24

[Article by I. Petrovskiy, chief of the Department for Growing Seeds of Hybrid Sunflower and Industrial Crops, Moldavian SSR Ministry of Agriculture, and A. Batyr, senior agronomist at the department: "Not Only the Drought Is To Blame... Or, What Shortcomings Should Be Eliminated in Order To Produce the Quantity of Hybrid Sunflower Seeds Planned for This Year" under the rubric "Seed Growing--A Primary Concern"]

[Text] One reason for the poor harvest of hybrid sunflower seeds in 1983 was the drought which had spread to the southern rayons of the republic in the spring, thus preventing adequate and uniform germination. But along with this there also were other and extremely substantial reasons.

Thus, only 52 percent of the areas planted with these seeds were areas with good predecessor crops--winter crops, which was far from sufficient. Contrary to technological requirements, a number of areas planted with the hybrid seeds had a year or 2 ago been planted with sunflower. For this reason alone, on areas aggregating more than 600 hectares in the Gigant and Biruintsa kolkhozes of Vulkaneshtskiy Rayon and in the Kolkhoz imeni Suvorov in Chadyr-Lungskiy Rayon the sunflower was severely infested by broomrape, so that the seed harvest there averaged only 2.4-3.4 quintals per hectare against the planned 7 quintals. In the Pravda Kolkhoz, Komratskiy Rayon, and in the Moldova Sovkhoz-Plant, Vulkaneshtskiy Rayon, the hybridization plots had previously been planted with corn which was grown with the aid of herbicides. The result? The sprouts of sunflower withered.

On some farms the optimal planting schedules were overlooked and deep planting of the seeds was tolerated. The Sovetskiy Pogranichnik Kolkhoz in Vulkaneshtskiy Rayon organized very poorly the conduct of planting operations and conducted rogueing and phytosanitary weeding in a slow and incompetent manner.

On many farms the seed harvest fell short of the goal owing to the inadequate provision of bees for the hybridization plots. For example, in the kolkhozes imeni K. Marx and Biruintsa, Vulkaneshtskiy Rayon, where the harvest was only 1.5-2.4 quintals per hectare, only 0.5-0.8 bee-family was provided per hectare

of sunflower, and moreover the bees were provided to the hybridization plots mostly only toward the end of the flowering period.

On a number of farms serious violations of the procedures for collecting, storing and processing seeds were tolerated. In the Biruintsia and Sovetskiy Pogranichnik kolkhozes as well as at the Sovetskiy Dunay Sovkhoz-Plant, Vulkaneshtskiy Rayon, and also in the Pravda Kolkhoz, Komratskiy Rayon, the harvest was damaged owing to the operation of combine harvesters at speeds above the normal and the failure to adjust their attachments as well as to the poor adjustment of seed-cleaning machinery, so that some batches contained high proportions of scoured seeds. In the Sovetskiy Pogranichnik and Biruintsia kolkhozes and the Sovetskiy Prut Sovkhoz-Plant, Vulkaneshtskiy Rayon, as well as in the Rodina Kolkhoz, Komratskiy Rayon, and the Leninskiy Put' Kolkhoz, Chadyr-Lungskiy Rayon, the sunflower seeds were mixed with impurities such as the seeds of other crops (wheat, corn) while still on the threshing floors. For this reason alone, more than 100 tons of the seeds proved to be unfit for their intended use.

Screens, asphalted platforms and seed-cleaning machines were absent on one-half of the 24 farms growing hybrid sunflower seeds. For this reason alone, the cleaning of the sunflower seed harvest took as long as 3 months and more than 60 percent of these seeds proved to be substandard when sold to the state.

As we see, the drought alone is far from responsible for the underfulfillment of the established targets for the production and sales to the state of hybrid sunflower seeds: another major cause was the attitude of the local managers and experts to this important matter.

To assure a solid foundation for this year's harvest, definite work has already been accomplished. In particular, the areas of the sunflower hybridization plots were determined as far back as last fall, with allowance for their required spatial isolation and the soil was upturned on schedule and provided, on most of these farms, with the recommended quotas of fertilizers. But this is only the beginning of a big job.

Growing hybrid seeds should be organized on the basis of industrialized techniques. In this connection, it is highly important for all the elements of these techniques to be strictly and highly competently implemented during the optimal seasons applicable. To attain maximum indicators, it is important for the seed-growing brigades and links to be converted to the collective contract system. Measures should be taken to provide the sunflower hybridization plots with an adequate number of bees for pollination. Special attention should be paid to providing the material-technical base for the growing of hybrid sunflower seeds.

All this, together with the competent and prompt conduct of seed-growing operations and the comprehensive and thorough preparation of farms for harvesting the seeds, would make it possible to accomplish the task facing the republic during the 4th year of the present 5-Year Plan by producing and

selling to the state 10,000 tons of hybrid sunflower seeds, that is, nearly twice as many as in 1983.

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From the Editors:

The Chadyr-Lungskiy and Komratskiy rayons have already been criticized previously in this periodical for their shortcomings in growing hybrid sunflower seeds (SEL'SKOYE KHOZYAYSTVO MOLDAVII, No 7, 1983). But at that time criticism was confined to the initial stage of the struggle for the following year's harvest. As time has shown, the list of shortcomings grew.

In issue No 1, 1984, of this periodical we published a reply to that criticism, from the Chadyr-Lungskiy Rayon party committee. It is to be hoped that the other, previously not named, shortcomings also have not been left out of the purview of party and agricultural organs.

The Editors also have on hand a reply from the Association for Mechanization and Electrification, Komratskiy Rayon Council of Kolkhozes, likewise regarding the previous criticism. The reply acknowledges the complete validity of the criticism and states that in 1983 the rayon's seed-growing farms gained definite experience. It also states that spring plowing has been carried out on the entire the scheduled area and that the selection of fields for the 1984 harvest in that rayon was planned with allowance for the recommendations of the Seleksiya NPO (Selection Scientific-Production Association). It further declares that, for the winter season, experts, brigade leaders and farm equipment operators intend to study the techniques of growing sunflower on the hybridization plots and that the construction of facilities for the sorting, drying and storage of seeds of that crop has been commenced. Presumably, now also a more responsible attitude will be displayed toward the harvesting of seed sunflower in the rayon.

Vulkaneshtskiy Rayon was not criticized in the aforementioned earlier article. However, as ensues from the material published above, the shortcomings in the growing of sunflower seeds in that rayon are not smaller but rather even greater than in the Chadyr-Lungskiy or Komratskiy rayons. In drawing the attention of the rayon's [farm] managers and experts to this, the Editors hope that the Vulkaneshtskiy Rayon party committee will not tarry in responding to the criticism and that, together with the rayon's agricultural organs, it will do everything to assure that the local seed-growing farms would make a suitable contribution to the implementation of the country's Food Program.

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## TILLING AND CROPPING TECHNOLOGY

UDC 633.85:631.52/53

### IMPORTANCE OF CREATING SUNFLOWER HYBRIDS STRESSED

Kishinev SEL'SKAYA KHOZYAYSTVO MOLDAVII in Russian No 7, Jul 83 pp 29-30

[Article by V. Lesnik, senior scientific associate of the Selektsiya Scientific Production Association, I. Petrovskiy, head of division for producing hybrid sunflower seeds and seed growing for industrial crops of the Main Farming Administration of the Moldavian SSR Ministry of Agriculture, and V. Bytka, division specialist: "Daily Attention to Plots for Hybridization of Sunflowers"]

[Text] The USSR Food Program for the period up to 1990 envisions accelerated increase in the production of sunflower seeds -- the main source of food oil and high-quality food and feed protein.

The main way to solve this problem is to accelerate the creation and introduction into production of more vigorous hybrids which are distinguished by a higher level of productivity and greater adaptability to technology, including suitability for cultivation with industrial technology, than is found in regionalized strains.

Seed growing farms of the republic have fulfilled the plans given to them for planting sections for propagation and hybridization of sunflowers. And the majority of farms have planted them on a high agrotechnical level, which has made it possible, even with the shortage of moisture in the soil, to obtain uniform and vigorous shoots. These include the kolkhozes imeni Lenin, imeni Kirov, imeni Suvorov and Leninskiy put' in Chadyr-Lungskiy rayon, the Rossiya, Avangard and Rodina in Kompatskiy Rayon, and the Gigant Kolkhoz, the Valeny Sovkhoz and the Leninskiy put' and Leninskoye znamya sovkhoz-plants in Vulkaneshtskiy rayon.

All the farms have adhered to the norms for spatial separation which are recommended by science. The areas planted for seeds have been previously occupied mainly by grain spike crops and corn.

At the same time, when planting the plots for hybridization, a number of farms have violated the agrotechnical policy, which has resulted in inadequate density of the plants on each hectare. Thus on the Pravda Kolkhoz in Chadyr-Lungskiy Rayon in interrow No 1 on field No 8 (area -- 50 hectares) and field

No 9 (area -- 100 hectares) there was an average of only 31,000-35,000 plants per hectare of the maternal line SV-514 of the hybrid S-220, and on the Mayak and Pravda kolkhozes in Kompatskiy Rayon -- no more than 30,000.

We are also disturbed by the fact that on considerable areas they have located the sections for hybridization of sunflowers on areas that have been planted in sunflowers for the 3 previous years (in Kompatskiy Rayon -- 386 hectares and Chadyr-Lungskiy -- 520 hectares), which will make it necessary to make additional expenditures for rogueing and phytosanitary weeding before the beginning of blossoming.

Not all of the farms have achieved a positive effect from the application of herbicides. Therefore on those fields where the application of herbicides in the fight against weeds has been less effective, it is necessary to conduct interrow mechanized cultivation and manual weeding in the rows.

This year for the first time in the republic on a relatively large area (more than 8,000 hectares) they have created sections for hybridization of two simple interlinear hybrids, S-220 and S-254, on which they will have to raise and gather about 5,900 tons of hybrid seeds of the first generation for use on areas planted for commercial crops. Therefore the maximum yield of high-quality seed material with increased productive properties will depend on the amount of attention devoted to hybridization plots by farm managers and specialists.

At the same time one must remember that the concept of high-quality seeds includes their varietal and planting qualities. Raising seeds with high varietal properties presupposes crossing uniform and typical parent lines on hybridization sections and making sure that the seeds that are produced are fully hybrids. This is why raising hybrid seeds of the first generation is a very responsible stage in sunflower seed growing. The varietal and planting qualities of the seeds that are raised depend on how we carry out these compulsory seed growing measures on the hybridization plots.

This is related to the fact that the effect from heterosis is realized to the greatest extent from the planting of seeds on commercial areas which are completely hybridized, that is, when the plants of the maternal forms on the hybridization section are pollinated only with pollen from the paternal forms. But since, because of a number of biological and genetic factors, the sterile analogs of the lines give off a certain number of fertile forms, many plants of the sterile maternal rows can be pollinated with their own pollen, which, in the final analysis, reduces the results of hybridization. Other nontypical (alien) fertile impurities, which can affect both the maternal and the paternal rows, can also have an exceptionally negative effect on the processes of purposive hybridization.

This is why the primary task on hybridization sections is to create conditions whereby all typical plants of the maternal rows are pollinated only with pollen of typical paternal rows. This is achieved through prompt and high-quality rogueing, removal of plants that are infected with diseases, and careful daily removal of fertile impurities in the sterile maternal rows and

nontypical ones in the paternal rows throughout the entire period when the sunflowers on the section are blossoming.

Rogueing and weeding are conducted at least twice before the beginning of blossoming on hybridization sections. This work is begun in the stage when there are 2-3 pairs of actually developed leaves, and the plants infected with powdery mildew are usually removed. When the plants have 5-7 pairs of leaves the nontypical (impure) plants are already clearly identifiable, so they can also be removed. The final rogueing is done just before the sunflowers begin to blossom.

Rogueing and phytosanitary weeding are usually done the same for both maternal and paternal rows of the hybridization sections.

The nontypical (impure) plants include: high-growing (hybrid impurities), branched -- in the rows of maternal forms, single-head (usual forms of sunflower) -- in the rows of the paternal line, and also plants with different coloring, form, size and serration of the leaves -- in the maternal and paternal rows, and bushy but high-growing plants in the rows of the paternal parent.

In order to carry out this work, the farms must organize special teams and detachments consisting of kolkhoz workers, sovkhoz workers, pupils in secondary schools and college students who are sent from the VUZes and tekhnikums. Special attention should be devoted to prompt removal of fallen sunflower seeds on planted fields that are located up to 3.5-4 kilometers from the hybridization plots. Under these conditions there is a considerable increase in the role of the seed grower-agronomists, controller-agronomists and inspectors, whose task consists not only in checking on the quality of the work that is done, but also in taking measures for organizing prompt and high-quality implementation of compulsory seed growing measures.

Bees play an exceptionally important role in more complete pollination of sunflowers. Therefore it is very important that by the time for blossoming of this crop on each farm colonies of bees be brought in and placed around each plot on the farms of kolkhoz and sovkhoz workers and also those allotted to seed growing farms.

As we know, the seeds of the paternal line RV-637 of the S-220 and S-254 hybrids are physically small and unsuitable for producing oil. Therefore the rows of this line on hybridization plots must be harvested after the blossoming has finished altogether and they should be used for feed purposes. This provides for good ventilation of the plants of the maternal rows., which reduces the degree of infection of the head with storage rot, and it also contributes to keeping the large seeds in the rows near the edges and to making sure that the plants on the area ripen well.

In the time remaining until the harvest a large amount of work must be done for creating and preparing the material and technical base for the harvest and post-harvest treatment of hybrid sunflower seeds. Here special attention should be devoted to the construction of sheds and the repair of existing

ones as well as paved surfaces, the preparation of drying equipment, the repair of existing and the acquisition of the missing quantity of seed cleaning machines, especially those such as the OVP, Petkus-Gigant, OS 4.5, and others.

Every farm should immediately order and before the beginning of harvesting Goskomsel'khoztekhnika should manufacture and deliver the necessary number of sets of screens for seed cleaning machines.

This year the Moldsel'khozkhimiya PNO should provide for drying sunflower seeds on hybridization plots at the first request from the seed growing farms.

Prompt and high-quality performance of work for caring for the planted areas and preparation of the necessary material and technical base will make it possible to raise a crop of hybrid seeds, to bring them up to high conditions, and thus to fulfill the assignment set by the government.

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## TILLING AND CROPPING TECHNOLOGY

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### RESULTS OF SEED GROWING TO IMPROVE SUNFLOWERS REPORTED

Krasnodar SEL'SKIYE ZORI in Russian No 7, Jul 83 pp 31-32

[Article by G. Pustovoyt, chief of division for selection of sunflowers of the All-Union Scientific Research Institute of Oil-Bearing Crops imeni V. S. Pustovoyt, doctor of agricultural sciences, and M. Onishchenko, senior scientific associate, candidate of agricultural sciences: "Results of Seed Growing to Improve Sunflowers"]

[Text] In the process of seed growing to improve sunflowers, the plan for which was developed by Academician V. S. Pustovoyt, regionalized strains in the primary seed growing units are continuously being improved in terms of many economically valuable indicators.

In the first stage the improvement of the strains was carried out primarily with the intention of increasing the oil content of the seeds. The yield remained the same (Table 1).

Table 1. Increase in the Oil Content of Sunflower Seeds During the Process of Seed Growing to Improve Them (VNIIMK)

Strains	1950-1952		1955-1957		
	Yield of seeds, quintals per hectare	Absolute oil content of dry seeds, %	Yield of seeds, quintals per hectare	Absolute oil content of dry seeds, %	
				%	increase in 5 yrs
VNIIMK-1646	23.4	42.4	23.9	47.5	+5.1
VNIIMK-6540	23.9	42.7	24.1	47.8	+5.1
VNIIMK-8931	23.3	44.9	23.8	49.8	+4.9

In subsequent years improvement of regionalized strains was carried out in the VNIIMK on a larger scale. During this time the strains from our institute's selection were significantly improved in terms of a number of indicators of economic value, particularly the main one of them -- productivity of the seeds (Table 2).

Table 2. Results of Improvement of Sunflower Strains During the Process of Seed Growing According to the Method of Academician V. S. Pustovoyt (VNIIMK)

Strains	Years of regional-alization	Yield of seeds, quintals per hectare			Planted area in country, thousands of hectares (1980)
		in years of regionalization	1966 - 1970	1976 - 1980	
VNIIMK-1646	1938	22.5	27.4	32.7	116.4
VNIIMK-6540	1950	22.8	28.0	32.9	543.8
Armavirskiy-3497	1953	22.4	28.3	32.9	811.2
VNIIMK-8883	1955	22.5	26.4	31.7	634.4
Peredovik	1960	24.6	28.3	32.1	888.5
Average		22.9	27.7	32.3	

During 1966-1970 the sunflower strains VNIIMK-1646, VNIIMK-6540, Armavirskiy-3497, VNIIMK-8883 and Peredovik produced an average of 4.8 quintals (21 percent) more than during the same period in the years of their regionalization.

In 1971 the state commission for strain testing of agricultural crops of the USSR Ministry of Agriculture regionalized these strains again and recognized them as improved, and the selection workers were given authors' certificates.

During recent years strains that have been improved in the process of seed growing have become even more productive, and during 1976-1980 in competitive strain testing the yield of seeds from the VNIIMK reached an average of 32.3 quintals per hectare -- 4.6 quintals more than the average for 1966-1970.

These figures are confirmed by the results of state strain testing and the increased productivity of sunflowers throughout the planted areas in many rayons of Krasnodar Kray (Table 3).

The largest areas planted in sunflowers in these rayons and in the kray as a whole were planted in strains from the VNIIMK selection: Yubileynyy-60 (59,600 hectares), VnIIMK-8883 (61,700 hectares) and Smena (44,300 hectares). The new strain Yubileynyy-60, which was obtained by the method of interspecific hybridization, is resistant to broomrape, to downy mildew and to other

pathogens. It has been regionalized in Krasnodar Kray and Rostov Oblast. In the Kuban this in 1982 this strain had the highest productivity in all the planted area -- 24.4 quintals of oil-bearing seeds per hectare, which surpasses the average productivity of sunflowers in the kray by 4 quintals. The productivity of Yubileynyy-60 throughout the entire planted area in Shcherbinovskiy Rayon reached 25.2 quintals per hectare, Starominskiy -- 25.6, Bryukhovetskiy -- 27.2, Kanevskiy -- 27.4, Leningradskiy -- 28.2, and Timashevskiy -- 28.6 quintals per hectare.

Table 3. Growth of Productivity of Sunflowers at the Yeysk State Strain Testing Station and in Rayons of This Zon in Krasnodar Kray, Quintals per Hectare

Rayons	1966-	1976	Increase in 10 years	1982	
	1970	1980		quintals/ hectare	area hectares
Yeysk GSU	19.6	27.0	+7.4	34.1	--
Yeyskiy	16.7	19.7	+3.0	25.1	16732
Shcherbinovskiy	17.3	19.3	+2.0	24.9	11232
Starominskiy	16.7	20.3	+3.6	24.8	6653
Leningradskiy	20.1	24.0	+3.9	26.7	8056
Kanevskiy	18.4	20.9	+2.5	25.4	13940

In 1982 the highest yields of sunflowers were achieved in two rayons: Timashevskiy -- from 8,347 hectares, an average of 29.4 quintals, and Bryukhovetskiy -- 8,928 hectares and 27.3 quintals, respectively. The average yields of sunflowers on individual farms of these rayons reached 35 quintals per hectare during that year, and on individual fields -- even 40 quintals per hectare. In these two leading rayons the main regionalized strain, VNIIMK-8883, was planted on 77 and 66 percent, respectively, of the areas planted in sunflowers. In these rayons it surpassed in productivity all other strains that were cultivated. In Timashevskiy Rayon, for example, from 6,383 hectares they harvested 30.1 quintals per hectare, and in Bryukhovetskiy, 27.7 quintals from each of 6,077 hectares.

In Dinskiy Rayon VNIIMK-8883 produced 28.5, Kalininskiy -- 27.1, Primorsko-Akhtarskiy -- 27.5, Leningradskiy -- 26.6, and Yeyskiy -- 26.3 quintals per hectare.

And this is very important: in these rayons the yield of seeds of the VNIIMK-8883 strain during the past season comprised 80-90 percent of the harvest obtained from plots for competitive strain testing of the VNIIMK and the Yeysk State Strain Testing Station.

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## TILLING AND CROPPING TECHNOLOGY

### PROGRESS OF OIL-BEARING CROPS IN KRASNODAR KRAY REPORTED

Saratov STEPNEYE PROSTORY in Russian No 10, Oct 83 pp 26-27

[Article by V. I. Svyatko, general director of the scientific production association for oil-bearing crops, candidate of agricultural sciences: "Seed Growing of Oil-Bearing Crops in Krasnodar Kray"]

[Text] Krasnodar Kray provides a positive example of high organization of seed growing of agricultural crops. Each year more than 370,000 hectares are planted in them, of which 300,000 are in sunflowers and 30,000 hectares are in soy beans. This kray provides 30 percent of the output of sunflower seed oil in the Russian Federation.

Skillful utilization of the modern achievements of science and advanced practice is making it possible for many rayons, farms and the kray as a whole to achieve high yields of oil-bearing crops. During the years of the 10th Five-Year Plan, from the entire planted area they obtained an average of 19.4 quintals of sunflower seeds per hectare, and in 1982 -- 20.5. The leading rayons such as Leningradskiy, Korenovskiy, Bryukhovetskiy and Timashevskiy annually receive 26-29 quintals of oil-bearing seeds per hectare.

Soy bean cultivation has been developed significantly in recent years and has occupied an eminent place in the feed crop rotation as a valuable protein crop. Many farms annually achieve high yields of this crop: on nonirrigated land -- 15-18, and on irrigated land 25-27 quintals per hectare.

In 1982, according to the results of the all-union socialist competition for increasing the production and procurements of seeds of oil-bearing crops, three rayons and 42 farms of the kray were declared winners. The success that was achieved was the result of the well organized branch of seed growing of oil-bearing crops, the creation of a network of specialized seed growing farms, and the changeover of seed growing to an industrial basis.

At the suggestion of the scientific production association for oil-bearing crops, by a decision of the Krasnodar Kray ispolkom, in 1981 three large specialized farms were organized in the kray for raising hybrid seeds of sunflowers of the first generation. In two of them they constructed seed growing facilities with a productivity of 1,000 tons per season each. These

farms fully provide the kolkhozes and sovkhozes of the kray with hybrid sunflower seeds.

Each year more than 25,000 tons of sunflower seeds are raised for their own needs and for state resources, including 20,000 tons for delivery to other areas of the country. They also produce up to 10,000 tons of soy beans and 4,000 tons of castor beans. All the area of oil-bearing crops is planted only with high-class seeds.

A considerable amount of work in the area of selection and seed growing of oil-bearing crops is being done by the All-Union Scientific Research Institute of Oil-Bearing Crops imeni V. S. Pustovoyt. This is our head institution. During the past 7 years alone we have regionalized 20 strains and hybrids from the selection of the VNIIIMK, including six hybrids and strains of sunflowers. Special attention is being devoted to the creation of highly productive early ripening interlinear hybrids of sunflowers which have comprehensive resistance to the main diseases and pests. The first domestic hybrids, Pochin and Uspekh, even this year, according to preliminary calculations, have been planted on an area of more than 200,000 hectares. In 1982, under production conditions, these strains proved themselves to be good ones. Their great suitability for technology, their uniformity and their earlier ripening (by 10-15 days) made it possible to obtain a large yield of them. On the kolkhozes and sovkhozes of Korenovskiy Rayon in Krasnodarskiy Kray, from an area of 1,220 hectares they obtained a yield of 228.6 quintals per hectare, or 2.5 quintals more than that of the regionalized strain. On the Beysug Kolkhoz in Primorsko-Akhtarskiy Rayon, the hybrid Pochin produced 44 quintals per hectare on an area of 40 hectares. On the kolkhoz imeni Kirov in Stavropol'skiy Rayon in Kuybyshev Oblast, the yield from an area of 126 hectares was 25 quintals, which was 9.2 quintals more than that of the Yenisey strain. The hybrids have proved themselves on many kolkhozes of Rostov, Crimea, Voronezh, Belgorod and other oblasts.

Qualitatively new interlinear hybrids of sunflowers, such as Skif, with a potential productivity of 40 quintals per hectare, have been created and submitted for state strain testing. They are resistant to many diseases, have exceptional uniformity, ripen much earlier than previous strains, and are less affected by white and gray mold. It is especially important that their threshing can be completed before the beginning of the harvesting of sugar beets. Changing over to cultivating these hybrids in the Russian Federation will make it possible to increase the productivity and improve the quality of oil-bearing seeds, and also to eliminate the tension in the responsible period of agricultural work.

But the scientific production association cannot propagate these seeds and put them into production because the necessary conditions do not exist -- areas of land and zones with spatial isolation. We have repeatedly suggested that farms and organizations of the zone for raising parent forms of sunflower hybrids be transferred to it, but so far this problem has still not been solved.

There are still not solutions to such crucial problems as material incentives for farms and people who are engaged in raising sunflower seeds, centralized material and technical support for specialized seed farms, increased procurement prices and barter exchange of the seeds.

In order to change seed growing over to an industrial basis, the oblasts are singling out specialized farms where it is intended to construct seed growing facilities with capacities of 1,000' tons of seeds per season. As the experience in operating the first of these facilities, constructed in Krasnodar Kray, has shown, their standard plan and technological diagram have essential shortcomings which must be eliminated immediately. They cannot be allowed to appear in newly constructed facilities. The TsITEPsel'khozerno must correct the plan immediately.

The scientific production association for oil-bearing crops, along with the entire experimental network, has the opportunity to provide elite seeds of strains of sunflowers, soy beans and rape for all seed growing farms of the republic which are engaged in growing seeds of the first reproduction. When organizing the system for seed growing of oil-bearing crops in which the scientific institutions which originate the strains are responsible for the quality of the seeds of the high reproductions, and specialized seed growing farms for the quality of the seeds of the first reproductions which are delivered to the kolkhozes and sovkhozes, one can significantly improve seed growing, change it over completely to an industrial basis, and provide for increased productivity and larger gross yields of oil-bearing crops in the republic.

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## TILLING AND CROPPING TECHNOLOGY

### WAYS OF FIGHTING AGAINST SEEDLESS SUNFLOWERS OUTLINED

Saratov STEPNEYE PROSTORY in Russian No 4, Apr 84 p 7

[Article by V. K. Morozov, professor, Scientific Research Institute of Agriculture of the Southeast: "The Fight Against Seedless Sunflowers"]

[Text] Last year there was increased seedlessness on the areas planted in sunflowers in our zone. This depends on the level of agrotechnology, the weather conditions, and partially on the strain. There is a real possibility of reducing the proportion of lax heads to 8-10 percent and less, and thus increasing the gross yield of oil-bearing seeds by 2-3 quintals per hectare.

Empty achenocarps can be found over the entire head of the sunflower, but there is an especially large number of them in the middle area. They form a solid area here, a brown spot called a "scorched area" which is sharply separated from the rest of the head. Up to 80 percent of the empty achenocarps are concentrated in it; the rest are scattered outside it. The brown spot consists of flowers which have died at an early age, long before acquiring the ability to bear fruit.

In terms of their external appearance, the empty achenocarps in the middle are sharply distinguished from those in the rest of the head. They are usually underdeveloped, flat, and do not have normal coloring -- they are whitish. It is difficult to distinguish the residuals of the blossom from the pericarp -- it is as though they have grown to be a part of it. The empty achenocarps of the peripheral part of the head have normal form, size and coloring, but they do not have a kernel.

It has been noted that the number of empty achenocarps in the "scorched area" varies a great deal, depending on the water supply for the plants. In a moist year, with high agrotechnology, there are almost none of them, but in a dry year, with a low level of cultivation, the brown spot formed from dead flowers grows a great deal and occupies a large part of the head. In extremely dry years the following was also observed: among the plants with a greater area of nutrition and, consequently, better provision of moisture, there were few empty achenocarps in the center, while among plants which had the ordinary area of nutrition, but, judging from the turgor of the leaves, had experienced a great shortage of water, up to two-thirds of the blossoms were lost.

Such cases show that seedlessness of the central part of the head is conditioned mainly by the degree of provision of moisture for the plants. The better it is, the fewer the empty seeds.

The situation with seedlessness is different in the peripheral parts of the head. They almost do not change because of water supply, including with irrigation. It also sometimes rains while the plants are blossoming, and then the seedlessness in this part of the head increases sharply. Consequently, it is conditioned by other factors, and namely by the degree to which the plants are provided with pollinators, selectivity during fertilization, and so forth.

Naturally, the question arises: why do the blossoms dry out first in the center, and not in any other part? Research has shown that the vascular conducting system in the head is positioned in the way that is shown in the drawing. The largest vessels in it go first to the peripheral part of the head, and the flowers in the central part are nourished from vessels that branch off from them. When the plant does not have enough moisture, most of what there is is absorbed by the peripheral achenocarps, which are biologically more valuable than the middle ones are.

An inadequate supply of water is also the cause of reduced nectar content in the flowers of the central part of the head. As a result, fewer insects visit them, which is also reflected to some degree in the development of seedlessness. In extremely dry years the quantity of nectar in the central part (measured with capillary tubes) has amounted to an average of 0.46 millimeters, and in the flowers of the zones near the edge -- 1.7 millimeters. Irrigation doubled the nectar content in the zones near the edge, and increased it by 20 percent in the central part.

High temperatures and low relative humidity of the air during the blossoming period have a negative effect on obtaining full-value seeds. The plants have pollen during this period and the stigmas are not brought to the outside. Right up until ripening the entire head is covered with jutting anthers. As a result, the seedlessness in them ranges from 61 to 94 percent.

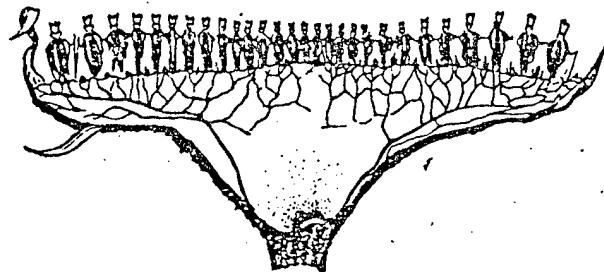


Figure. Diagram of Vascular-Conductive System of Head of a Sunflower

The level of agrotechnology and the weather conditions affect the degree of seedlessness more than strain peculiarities do. Therefore it is necessary to begin in the winter to prepare for planting sunflowers. On the fields that are intended for them it is mandatory to carry out snow retention, which reduces lax heads by almost half, and in extremely dry years -- to one-fourth the number ordinarily reached. The mass of 1,000 achenocarps increases. But there is not doubt that the most powerful methods of increasing the productivity of sunflowers is irrigation. In our experiments water supply reduced seedlessness from 55.6 percent on nonirrigated land to 28.4 percent, and additional growing period irrigations further reduced it to 15.9 percent. The density of the plant stand, artificial pollination, the provision of the plants with nutritive substances and additional bee pollination are of no small importance. The utilization of bees is most effective when the plants have a normal supply of moisture and nutritive substances. When there is a shortage of these, the plants do not exude nectar well and the insects do not visit them. Thus the specific device of additional pollination has an effect only with a high agricultural background for the cultivation of the plants. Sometimes in order to train the bees it is necessary to treat the plants with sugar syrup which is placed on the blossoms of the sunflower. Practice has shown that it is necessary to bring in no less than 1.5-2 bee colonies per hectare planted in sunflowers.

In addition to the aforementioned devices, the following are significant: correct distribution of the areas planted in sunflowers in the crop rotation, plowing the stubble under, early deep surface and subsoil tilling, snow retention, autumn retention of water from thawed snow and ice, prompt preplanting cultivation and high quality planting, optimal density of the plants per hectare, removal of weeds from the planted areas, and extensive utilization of fertilizers. All these agrotechnical devices are generally known, and there is no need to discuss them in detail. As one can see, the agrotechnology for obtaining sunflowers with reduced seedlessness coincides with the complex of measures for their industrial cultivation.

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## TILLING AND CROPPING TECHNOLOGY

### BRIEFS

SUNFLOWER HYBRIDS--"Daily Attention to Plots for Sunflower Hybridization" This was the name of the article published in the seventh issue of our magazine for 1983, which contained criticism against Chadyr-Lungskiy Rayon. It says in the response that came to the editorial staff from the Chadyr-Lungskiy party raykom that the article was discussed at a conference of the agronomy service, that the specialists of the Pravda Kolkhoz, who are responsible for cultivating seed material for sunflowers and who committed violations of agrotechnology, had been warned at an expanded meeting of the association for mechanization and electrification, and that the shortcomings in the distribution of the hybridization sections which existed in the rayon will be eliminated when developing the structure of the planted areas for 1984. [Text] [Kishinev SEL'SKAYA KHOZYAYSTVA MOLDAVII in Russian No 1, Jan 84 p 37] [COPYRIGHT: Izdatel'stvo TsK KP Moldavii, "Sel'skoye khozyaystvo Moldavii", 1983] 11772

INDUSTRIAL SUNFLOWER RAISING--In Glodyanskiy Rayon during the years of the 9th and 10th Five-Year Plans the average productivity of sunflowers did not exceed 20 quintals per hectare. In 1979 for the first time here they began to raise sunflowers on the entire area according to industrial technology and they obtained 25.2 quintals per hectare. Under the current five-year plan the productivity of this crop has increased even more: in 1981 they obtained 26.6 quintals per hectare, in 1982 -- 28.0 and in 1983 -- 29.2 quintals per hectare. [Text] [Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 12, Dec 83 p 3] [COPYRIGHT: Izdatel'stvo "Khimiya", "Khimiya v sel'skom khozyaystve, 1983] 11772

CARICATURIST COMMENTS--Oil plants of the USSR Ministry of the Food Industry are allowing large losses of sunflower seeds and prepared products. Thus at seven enterprises of the Central Chernozem production association of the oil and fat industry which were inspected, above-normative losses of oil in less than 2 years amounted to 530 tons. Several thousand tons of sunflower seeds are partially or completely spoiled because of unsatisfactory storage. Instead of correcting the storage of this valuable food product, the managers of the association last year allowed the Georgiy-Dezhskiy plant to increase the planned losses by 30 percent, which made it possible to write off about 100 tons of oil in 11 months. Similar shortcomings were discovered at many oil plants of the RSFSR, Kazakhstan, Lithuania and Moldavia. Spoilage of seeds and losses of vegetable oil are the result of poor organization of

production, unsatisfactory storage of raw material and failure to observe technological and labor discipline. [Text] [Moscow PRAVDA in Russian 22 May 84 p 3] 11772

HYBRID SUNFLOWERS--Odessa--The delivery of seeds of the sunflower hybrid, Odesskiy-96, to the farms has been started at the All-Union Selection and Genetics Institute. With a productivity which exceeds that of the strain currently being cultivated by 5-8 quintals, it is also suitable for machine harvesting. This spring sunflowers from Odessa selection will be planted on about a million hectares of fields in the country. [Text] [Moscow TRUD in Russian 19 Feb 84 p 1] 11772

SEEDS FOR PLANTING--Krasnodar--The All-Union Scientific Research Institute of Oil-Bearing Crops has begun mass shipments of sunflower seeds for spring planting. More than a thousand tons of planting material will be sent to farms of the Kuban, Don, Stavropol, the Ukraine and the eastern regions of the country. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 13 Jan 84 p 1] 11771

OIL-BEARING CROPS--Povolzhskiy Rayon is the largest cultivator of oil-bearing crops in the RSFSR. But their low productivity and, as a result of this, the sharp reduction of the gross yields have led to a failure to fulfill plans for state procurements of oil-bearing raw material, particularly sunflower seeds. The main causes are the tardiness of the times for planting and harvesting, the increased planting norms and the poor quality of the seeds. Planting on the farms lasts 22-35 calendar days, and harvesting 36-87. [Excerpt] [Saratov STEPNNYE PROSTORY in Russian No 1, Jan 84 p 6] [COPYRIGHT: "Stepnyye prostory", No 1, 1984] 11772

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## FORESTRY AND TIMBER

### TECHNOLOGY OF PROCESSING WOOD WASTE DISCUSSED

Problems in Krasnayarskiy Kray

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 May 84 p 2

/Article by inspection brigade consisting of Yu. Galushko, candidate of economic sciences; V. Khrustalev, special correspondent of SOTSIALISTICHESKAYA INDUSTRIYA; T. Shevchenko, special correspondent of LESNOY PROMYSHLENNOSTI: "View From a Mountain of Waste"/

/Text/ An inspection team of the newspapers SOTSIALISTICHESKAYA INDUSTRIYA and LESNAYA PROMYSHLENNOST'.

There is ample reason for Krasnoyarsk Kray being referred to as a great forest state. Its green tracts spread out over an area of almost 110 million hectares. One out of every five of the country's trees grows here.

Those who developed the plans for creating a timber processing complex in the kray saw a continuous network of closely interrelated enterprises. It began with sawmill and woodworking plants. From these plants the chips and sawdust had to be sent to the Krasnoyarsk biochemical and the Kansk and Khakasskiy hydrolytic plants. The ethyl alcohol produced here should have subsequently been sent to the Krasnoyarsk Synthetic Rubber Plant. And it in turn should have served as the raw material for the tire and technical rubber goods plants located nearby behind a fence.

Another flow of wood was directed to the curing pans of the Krasnoyarsk Pulp and Paper Combine, intended for the production of viscose and cord cellulose. The plans called for these semi-finished goods at the chemical fiber plant to be processed into viscose, silk and cord thread. At the silk combine, this thread had to be converted into fabric and at the chemical fiber plant -- into cord, required for the production of tires and technical rubber products.

Thus the circle was closed to a radius of 2-3 kilometers, thus precluding further shipments of the raw materials and semi-finished goods. And the chief concern -- this unique complex has truly ensured the complete use of the wood raw materials and waste products.

Almost a quarter of a century has passed since this alluring thought was conceived. What changes have taken place?

We slowly climb up the steep mountain of sawdust and chips that towers above the boiler room of the Krasnoyarsk Woodworking Combine of the Krasnoyarsk

Furniture Association. How much is here? Dozens and perhaps hundreds of thousands of cubic meters of excellent hydrolytic raw materials. In any case it is known for certain that this combine alone burns up to 120,000 cubic meters of waste materials annually. And we see how the smoke rises from the spontaneous combustion taking place within the layers that have turned black with the passage of time, layers which the blade of a bulldozer cannot reach. Meanwhile, one after another the dumptrucks approach the base of the mountain with the latest portions of the fragrant golden shavings and sawdust.

A great deal can be seen from the top of the man-made "El'brus." Particularly the fact that the neighboring Krasnoyarsk Biochemical Plant is on the verge of shutting down. Why? Because the flow of these same shavings and sawdust is coming to an end. We went to the mountain directly from the office of the director of the biochemical plant V. Panin. He had devoted a great amount of thought to the problem of just where the raw materials were to come from. Finally he decided to try his luck -- in Irkutsk or Kemerovo oblasts.

Hence, from the mountain of wood waste products one can readily see the railroad trains as they rush to the tire plant carrying rubber from the Trans-Caucasus. And once again with rubber, but of a different quality -- from Krasnoyarsk to Moldavia and the Ukraine. And freight cars depart for the Urals carrying the identically same viscose cord and they return from the Urals.

In short, one type remained at the complex. From the technological chain -- uncoordinated elements. And departmental barriers became the principal obstacle preventing efficient use of the forest resources.

The Krasnoyarsk Pulp and Paper Combine was the first to drop out of the complex; it ceased the production of viscose cellulose. But it was not easy for USSR Minlesbumprom /Ministry of the Timber, Pulp and Paper and Wood Processing Industry/ or the all-union industrial association association of Soyuzbumag to explain why this had occurred. Nobody could clearly recall anything like this ever having happened in the past. True, Deputy Minister G. Pronin shared some vague recollections. It turned out that the reason for the cessation of cellulose production -- the Yenisey water. The purification of the water required such expenditures that the enterprise's output became unprofitable. Thus it was considered to be more advantageous to have the cellulose delivered from the Bratsk timber industry complex. It was quite possible that the cellulose shipments would be cheaper than the purification installations. But this was not the only problem. For some reason, nobody gave any thought to the fact that coincidental with the removal of the pulp and paper combine a breach would develop in the unified wood-chemical production line. The attempts to rectify this situation by means of deliveries from Bratsk were not crowned with success. The "additional shipments" did not cover the requirements. Cellulose is now being shipped here from the shores of the Neman River and even from abroad.

About 10 years ago the biochemical plant dropped out of the complex. Today it is searching for raw materials in other krays and its products are being marketed over distances numbering thousands of kilometers. Why is it that the biochemists are attempting to acquire chips at Biryusinsk and not from their neighboring woodworking combine, the waste products of which could satisfy a good half of their annual requirements?

"When we were a part of the pulp and paper combine" explained the plant's director I. Musiyenko, "we were literally buried under with sawdust and chips. But no sooner did the enterprise convert over to the Glavmikrobioprom system than an insurmountable departmental limit appeared. At the woodworking plants they now say: "You do not belong to us." And they operate according to the principle: your own shirt is closer to your body.

As already mentioned, the woodworking combine of the Krasnoyarskmebel' Association is burning sawdust in the chambers of its own boiler room with the ministry's blessings.

Can such a situation be tolerated, particularly when Kansk-Achinsk coal is found nearby, coal which is cheaper than sawdust by more than threefold?

The biochemists must stagger along and furnish hydrolytic alcohol, since they are being followed feverishly by the synthetic rubber plant. Feeling that they had been mistreated for a considerably period of time, the leaders of the enterprise began searching for more reliable partners. The USSR Minneftekhimprom /Ministry of the Petroleum Refining and Petrochemical Industry/ switched the plant over to other raw materials and to other output. As a result, the enterprise began mastering grades of rubber for which there is almost no use in the kray. Owing to this "gambit," the ministry doomed two other plants to poor working conditions -- the tire and technical rubber products plants. With a synthetic rubber plant located nearby, how could they import raw materials from the center of Russia or the Trans-Caucasus?

"One can hardly take pride in the fact" stated the deputy director of the Krasnoyarsk Tire Plant L. Plotnikov, "that the Krasnoyarsk tires are the most expensive ones in the country."

Thus is the problem one of the biochemists failing to supply the workers at the SK synthetic rubber plant with ethyl alcohol? It turns out that this is not the problem. The producers of the rubber do not wish to accept it.

"The technology for producing out product from hydrolytic alcohol has become hopelessly outmoded" explained the plant's director A. Semenov, "We are presently using imported raw materials which are being delivered to enterprises of our ministry and which are being obtained from the waste products of petroleum refining operations."

This is a typical example of branch thought. Perhaps the cost to the country for such shipments is not of such great importance so long as domestic materials are involved. And perhaps we should not be in a hurry to condemn the traditional technology.

"Strictly speaking" commented an assistant professor in the Department of Chemistry and the Technology for Processing Elastomers of the Siberian Technological Institute and Candidate of Technical Sciences I. Chernyuk,

"A change back to the former technology is a realistic possibility. At the SK plant, haste was displayed in eliminating the production of divinyl from hydrolytic alcohol. But this product can be produced at this same biochemical plant, in the absence of any extensive modernization of the enterprise. A requirement exists merely for installing a technological unit.

Specialization is not simply a change in the technology or in the suppliers and consumers. Rather it constitutes a profound improvement in the consciousness of the personnel. The habit becomes ingrained. Thus we often overheard some rather sharp and categorical objections: "You can appeal to the moon and still there will be no change." At the same time, the leaders of the pulp and paper combine V. Melanich and of the synthetic rubber plant A. Semenov -- our chief opponents -- have not negated the immutable truth that full use must be made of the forest's resources and that regional peculiarities must be taken into account to the maximum possible degree. According to their logic however, this work should be carried out almost anywhere except at key enterprises of the forest-chemistry complex.

It is recognized that a revival of the complex, even only partially, is by no means a simple task. It requires large capital investments. But indeed the transporting of the raw materials, semi-finished goods and finished products, owing to departmental limitations, is not less costly. According to the most humble computations, two-way hauls of identical products produced by different departments of forest-chemistry production amount to more than 250 million ton-kilometers.

It was 10 years ago that the Laboratory for Economic Studies of the Institute of Economics and the Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences studied the possibility of restoring production relationships within the framework of the forestry-chemical complex. It was unfortunate that this occurred at a time when labor was not required by anyone. All seemingly objected to the complex and there was nobody to seize the reins for controlling this process.

Why then can we not now return to this national economic problem, particularly in view of the fact that a council which includes an authorized representative of USSR Gosplan and the eastern Siberian economic region has been created in this region?

In speaking before the April (1984) Plenum of the CPSU Central Committee, Comrade K.U. Chernenko underscored the need for achieving all-round economic development in the various areas and for erecting a stronger barrier against use of the departmental approach. Our inspection team and meetings with workers attached to enterprises in the kray have once again confirmed the urgent nature of this problem.

Thus, should we return back to the complex? No, let us move forward to a complex and to a new and higher level.

#### Resource Use in Latvia

Riga SOVETSKAYA LATVIYA in Russian 20 May 84 p 2

Article by M. Daugavietis, candidate of technical sciences and head of the Laboratory for Processing of Forest Raw Materials at the Silava Scientific Production Association: "Wood -- A Waste-Free Raw Material"

Text As is well known, the productivity of a forest can be raised through proper tending of it -- draining of the soil, fertilization, planting of rapid-growing strains. A large reserve for satisfying the nation's economic

requirements for wood is that of achieving efficient utilization of the entire biomass of wood. This includes the use of branches, tops, needles and leaves usually left behind in the tree-felling areas and thin trunk trees and undergrowth cut down during the course of tending the forest or preparing land for reclamation purposes.

Each year the resources of such raw materials in the Latvian SSR amount to 1.5 million tons, of which amount 250,000 tons are wood verdure (conifer needles, leaves and young shoots). Approximately 20 percent of this material is inevitably lost during the course of timber procurement operations, roughly 30 percent is used by the timber procurement specialists for reinforcing roads to be used for the skidding and hauling of the more valuable trunk wood and the remaining portion of the raw materials can be employed successfully for satisfying the requirements of various branches of the national economy.

The conifer needles and leaves, when processed into vitamin meal, constitute a valuable additive for the rations for agricultural animals and they serve as a source for biologically active agents for the medical industry, the perfume industry and domestic chemistry. Branches and thin-trunk trees are the raw materials for the production of chipboard and fibreboard panels, for the hydrolytic industry for the production of furfural and also for the production of high calorie fuel.

Nor is this a simple enumeration of the possible spheres of use for cheap wood waste materials. At the Kalsnava Forestry Experimental Station and at the Aluksne and Rezekne timber industry farms, efficient work is being performed by three departments engaged in producing vitamin meal. The departments for the chemical processing of wood verdure at the Strenchi and Ventspils timber industry farms are operating on a highly profitable basis. With each passing year an increase is taking place throughout the republic in the production of technological chips made from thin-trunk wood, procured during forest tending operations. Nevertheless the problem of waste-free processing of wood continues to be a very urgent one.

Actually, no more than 5-7 percent of the waste products obtained from tree-felling areas is being utilized in a thrifty manner. Why is this? A number of reasons are cited for this situation: large labor expenditures, the absence of mechanization equipment for procuring and processing the crowns of trees and thin trunks and also the republic's limited labor resources. All of this is true. However, an important role is also played here by a psychological factor: a forest is usually viewed as an inexhaustible source for raw materials and the procurement and processing of the biomass of a crown or the so-called waste products of tree-felling areas, which remain following improvement cuttings, are considered apart from the technology for procuring trunk wood, that is, the question is not raised concerning their use on a waste-free basis.

Today this question is appearing more and more on the agenda of events. And whereas concern for the waste-free use of wood is of paramount importance with regard to timber procurement production operations, the technological process has already commenced in the forest in connection with the procurement of raw materials. Computations carried out at the Silava Scientific Production Association of the Ministry of the Forestry and Timber Industry for the Latvian SSR have shown that with use being made of the entire biomass of a tree, compared to using only its trunk portion, the specific labor expenditures per 1,000 rubles of marketable output decrease by 30-40 percent and specific capital investments -- by 15-25 percent.

An appropriate technology has been developed at the Silava NPO. Workers at the two ministries -- forestry and timber industry and the woodworking industry -- the Silava and Gauya NPO's and the Bolderayskiy Combine for the All-Round Processing of Wood established a creative brigade in 1983 for the purpose of carrying out checks on the theoretical computations, the technology and on new equipment. A production experiment involving all stages of the technological process was carried out.

The biomass of thin-trunk trees was procured and processed completely. The foundation for this technology -- converting entire trees into three types of products -- technological and fuel chips and wood verdure. The wood verdure was processed into vitamin meal at the Kalsnava Forestry Experimental Station and approximately 500 cubic meters of technological chips obtained from non-liquid raw materials were processed into chipboard panels at the Bolderayskiy Combine. A check carried out on an experimental batch revealed that 50 percent of the chips obtained from non-liquid raw materials, when added to the panel composition, made it conform more fully to the requirements set forth in the state standards.

In 1984 the combine will expand the production of such panels through the use of up to 1,500 cubic meters of cheap chips obtained from the Kalsnava LOS /lesoopytnaya stantsiya; forestry experimental station/.

The proposed technology and the set of machines turned out to be fully competitive and more efficient compared to the technological chips traditionally obtained from trunk wood. Thus from 1 hectare of forest it is possible to obtain raw materials for the production of 50-80 percent additional marketable output.

This technology provided the basis for two new departments -- a department for the production of vitamin meal at the Yekabpils Timber Industry Farm and a timber biochemistry department at the Ventspils Timber Industry Farm, the construction of which is planned for this current five-year plan. Thus an opportunity will appear for annually processing approximately 2,000 additional tons of wood verdure.

#### Implementation of Low-Waste Technology

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 4, Apr 84 pp 84-86

/Article by S. Lositskiy, candidate of technical sciences and P. Shkabura:  
"Low-Waste Technology in Processing of Wood"/

/Text/ To consume raw materials and other materials in a thrifty manner and to eliminate losses by reducing the quantities of waste products -- this is equivalent to realizing savings in the use of manpower, increasing the production of goods and protecting the surrounding natural environment.

An analysis of the materials obtained from a one-time study of the availability, formation and use of production waste products, carried out at all enterprises of the UkSSR Minlesprom /Ministry of the Forestry Industry, has shown that the quantity of wood waste products annually exceeds 2.3 million cubic meters. More than 96 percent of these waste products is being used for the production of various types of products for economic use, valued at more than 46.5 million rubles, and also for heating.

The formation of waste products is not an inevitability; it merely reflects the level of development of the production technology. It often happens that what yesterday was considered to be a waste product is today viewed as being a valuable raw material. Thus, for example, the Kiev DOK /wood-working combine/ of the Kiyevdrev Association satisfies its requirements for technological chips by more than 83 percent using wood waste products. Moreover, in addition to its own waste products, it also processes those of 19 other Kiev enterprises and also 14 forestry farms in Kiev and Chernigov oblasts. Each year the Kiyevdrev Association procures on the side and utilizes more than 130,000 cubic meters of wood waste products.

The Prikarpates Association uses wood in an efficient and complete manner. This association utilizes 97 percent of its wood waste products, producing a large assortment of consumer goods valued at more than 8.3 million rubles annually. A comprehensive system for controlling quality has been introduced into operations here on an extensive scale. The thorough processing of waste products is called for in all of the technological cycles. An important indicator -- the coefficient of wood utilization -- has been introduced into operations at the wood-working enterprises. The association's indicator is the highest for the branch -- 0.95.

Earlier, a large accumulation of sawdust and shavings, which was not utilized, was usually observed at the wood-processing enterprises. At the present time, the picture has changed. These waste products are now being used almost completely. The workers in the Carpathian region have created a technology which makes it possible to add sawdust and shavings to the outer layers of chipboard panels. A successful solution has also been found for the problem of utilization of the waste products of tree-felling areas: here they are using conifer needles to make vitamin meal, essential oils, cell sap, wood wax and other valuable products and they are obtaining tanning raw material from wood bark.

However, there is no reason to believe that the problem concerned with the use of waste products has been solved completely. A one-time study has revealed that 3 percent of the wood waste products is still being shipped to dumping grounds where it is destroyed. For the ministry as a whole, the volume of such materials amounts to approximately 55,000 cubic meters (taking into account the carry-over residues at enterprises). In the interest of making use of these waste products, the Ivano-Frankovsk PKTI /planning and design technological

institute<sup>7</sup> developed a technology for producing pressed crates from crushed wood, which is being employed at the Motovilovskiy DOK /woodworking combine<sup>7</sup>. The raw material used for the production of pressed crates: waste products from the production of clean procurements, shaped packaging materials and sawmill production operations, in the form of sawdust and shavings and in a volume of 5,600 cubic meters annually and technological chips from the processing of waste scraps from sawmill production in a volume of 9,400 cubic meters annually. The production of crates from waste materials will make it possible to save more than 30,000 cubic meters of lumber annually.

At the UkrNIIMOD /Ukrainian Scientific Research Institute for the Mechanical Processing of Lumber/, new designs have been developed for hollow enclosing panels for wooden housing construction, facing panels and door casings made from glued-wood compositions, in turn obtained from wood waste scraps. These products are distinguished by unique designs and by high technical-economic indicators. The use of such panels makes it possible to economize in the use of lumber and deficit fibreboard and slag plates. The overall economic savings amounts to 11 rubles per square meter of panel. Future plans call for the organization of wood panel production operations at the Kiev Plywood Plant using production waste products.

Strangely enough, associations and enterprises located in regions marked by critical lumber shortages -- Donetskmebel', Voroshilovgradmebel', Zaporozhdrev, Khar'kovdrev and some others -- are utilizing their wood waste scraps in a very poor manner and are shipping them to the dumping grounds in large quantities. Moreover, large areas are being used in an inefficient manner for the stockpiling of waste materials. Quite often they appear as disorganized dumping grounds.

In the interest of achieving more extensive use of these waste products, a unit has been developed at UkrNIIMOD for producing shaped products made from glued wood compositions, a unit which operates in an automatic regime. It has been successfully tested under production conditions at the Kladviyevo Testing and Experimental Plant. The economic savings realized from the introduction of this unit amounts to 285,000 rubles per 500,000 furniture cabinets. The Ivano-Frankovsk PKTI has developed a plan for a department for producing the elements for drawers from crushed wood, with the work to be performed at the Solonitsevka Combine for Furniture Parts of the Khar'kovdrev Association. The economic savings realized from mastering the production of these parts will amount to 82,000 rubles annually. The production of inter-saw gaskets made from wood waste products has been organized at the Beregomet Timber Combine of the Chernovitsles Association. Work is going forward at UkrNIIMOD in connection with the creation of multiple use pallets made from crushed wood, which also promise to provide great economic savings.

The task of achieving complete use of wood raw materials requires improvements in production and the introduction of progressive technologies. During the current five-year plan, many associations and enterprises will expand considerably their capabilities for making efficient use of wood waste products and low grade wood and this will make it possible to increase considerably the production of goods, to realize savings in the use of millions of cubic meters of high quality wood and to convert over to waste-free production operations.

During the course of the one-time study, waste products came to light which are harmful to the health of man and live organisms, waste products which can accumulate in both soil and water sources. Their number includes polyester and nitrocellulose lacquers, urea-formaldehyde and phenol-formaldehyde resins, hardened paints, putty and others. The entry of these waste products into the surrounding environment serves as an additional factor for contaminating it and can exert a direct or indirect unfavorable influence on the health of man.

Jointly with the Kiev Scientific-Research Institute of General and Communal Hygiene imeni A.N. Marzeyev, UkrNIIMOD is developing scientific recommendations for the neutralization, rendering harmless or destruction of the mentioned waste products. The basis for such recommendations is the soil method for rendering harmless a number of types of industrial waste products, a method which is hygienically acceptable and economically advantageous. A requirement exists merely for validating the hygienically acceptable norms for soil applications and also the workloads for the improved dumping grounds. This obviously applies only to those waste products which cannot be used a second time in production as raw material. The introduction into operational practice of soil methods for rendering harmless the solid and liquid waste products of wood processing production operations represents one measure aimed at protecting the surrounding environment.

A definite amount of work is being carried out at enterprises of the UkrSSR Minlesprom in connection with the protection and efficient use of water resources. At the beginning of 1984, the capability of the purification installations reached 7.1 million cubic meters annually, including biological purification work -- 6.6 million cubic meters annually.

In connection with the introduction of payments for water, commencing in 1982 a considerable reduction has taken place in water consumption, despite an increase in production operations. Against a plan calling for the use in 1983 of 44.1 million cubic meters of water, only 34 million cubic meters were actually used, or 10 million cubic meters less, through an increase in the amount of water used a second time or repeatedly. Compared to 1980 when the circulating water supply systems contained 8.9 million cubic meters of water, in 1983 -- 15.0 million cubic meters, or 60 percent more.

Compared to 1980, the amount of contaminated waste water discharged in 1982 decreased by 340,000 cubic meters, including waste water in the absence of purification -- by 391,000 cubic meters. During the 1981-1983 period, approximately 20 enterprises ceased discharging contaminated waste water into open reservoirs. Units for the burning of phenol waters were introduced into operations at the Svalyava, Perechin and Velikobychkov forestry-chemical combines. The burning of waste water -- a most reliable and efficient method for rendering it harmless -- is being employed extensively in industry at the present time. In 1982 the thermal method was employed at these forestry-chemical combines for rendering harmless 34,500 cubic meters of phenol water and in 1983 -- 51,900 cubic meters. The expenses for carrying out such purification work amount to approximately 500,000 rubles annually.

A key problem with regard to protecting water against contamination is that of controlling the conditions under which waste water is discharged into water objects. In conformity with the principles adopted in our country, the established norms for the structure and properties of the water in water objects

must not be violated at points where the water is used for drinking, cultural-domestic or fishing purposes. Norms are being developed for each enterprise for the maximum permissible amounts of contaminating substances that can be discharged with waste waters. In accordance with a requirement by the organs of water protection, these norms have already been developed and approved for 20 enterprises of the branch, located in regions of the greatest contamination. For enterprises located in regions having a tense water balance, the organs of water protection have established the limits for special water utilization. These measures will promote more efficient utilization of the water resources.

An inventory has been carried out at all of the branch's enterprises on those sources which discharge harmful substances into the atmosphere. This inventory was conducted for the purpose of studying the degree to which they contaminate the atmosphere, developing plans for recovering and rendering them harmless and for establishing the maximum permissible discharges of such harmful substances into the atmosphere.

An analysis of the materials obtained from this inventory has shown that, compared to other branches of industry, the level of such discharges by wood-processing enterprises is not very high and amounts to less than 1 percent of the total amount of contaminating substances being discharged throughout the republic. Of the overall quantity of contaminating substances being released by all fixed sources of contamination, 80.3 percent is being recovered and rendered harmless. The most prevalent contaminant is wood dust, which constitutes 82 percent of all discharges. However, approximately 93 percent of the dust is recovered and utilized.

The extensive introduction into operations of the experience of those enterprises employing low-waste or waste-free technologies will raise the efficiency of production operations at all industrial enterprises and ensure protection of the environment.

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## LAND RECLAMATION AND WATER RESOURCES

### MINISTER ON EFFECTIVE AGRICULTURAL USE OF RECLAIMED LAND

Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 84 pp 1-2

[Report by N.F. Vasil'yev, minister of land reclamation and water resources of the USSR: "The Effectiveness of Land Reclamation"]

[Text] The nation's Food Program, which was approved by the May 1982 Plenum of the CPSU Central Committee, calls for extensive land reclamation. It is planned to increase the area of irrigated agriculture to 20.8 million hectares in 1985 and to 23-25 million hectares in 1990, and the area of drained land is to be increased correspondingly to 15.5 million and 18-19 million hectares.

A large amount of reclamation work is to be performed this year. A total of 666,000 hectares of irrigated land and 700,000 hectares of drained land are to be placed into use. The total area of reclaimed agricultural land will reach 34 million hectares by the end of the year. The graphs presented here show the growth occurring in recent years in the area of irrigated and drained agricultural land.

The collectives of reclamation organizations of the USSR Ministry of Land Reclamation and Water Resources have fulfilled their assignments for the first 4 months. A total of 30,000 hectares of irrigated land has been placed into use, compared with 20,000 hectares for the same period of last year. That land will be planted this year. In addition, 505,000 hectares of pasture land has been irrigated and work has been carried out to rebuild existing irrigation systems on 104,000 hectares.

Special attention is being given to the comprehensive performance of land reclamation and the land's agricultural assimilation, and to the achievement of planned crop yields on irrigated and drained land.

Zones of guaranteed grain production, especially corn, are being set up in the irrigated farming areas. We have to

achieve a gross grain harvest of at least 15 million tons from the irrigated land in 1985 and 20-22 million tons in 1990. Feed production on reclaimed land is to be increased to 63 million tons of feed units in 1985 and to 80-82 million tons in 1990. Irrigated feed production areas are to be created in the livestock complexes. Zones of guaranteed vegetable and early potatoe production are being created on irrigated land near large cities and industrial centers.

It is planned to allocate enough equipment, mineral fertilizers and chemical plant protection means to meet all the production needs on kolkhozes and sovkhozes farming reclaimed land.

N. F. Vasil'yev, USSR minister of land reclamation and water resources, tells about the work being performed by the branch in 1984 in an article on page two.

Land reclamation organizations are making a large contribution to the fulfillment of the nation's Food Program. They have placed around 2 million hectares of irrigated land and more than 2 million hectares of drained land into use during the first 3 years of this 5-year period. The total area of reclaimed agricultural land has now reached 32.7 million hectares. All of the raw cotton and rice, three-quarters of the vegetables, as much as 25% of the feed and a considerable quantity of grain are produced on this land.

A number of reclamation organizations have not fulfilled their plans for placing new land into use, however. In his speech at the April 1984 Plenum of CPSU Central Committee, Comrade K.U. Chernenko stressed the fact that we have reached an extremely important point in the 5-year period, and we are now counting the months. It is therefore important to achieve the absolute fulfillment of assignments in all areas.

The land reclamation workers have some important tasks in the fourth year of the 5-year period. A total of 666,000 hectares of irrigated land and 700,000 hectares of drained land are to be placed into use. The reclamation systems are to be technically improved, their water supply is to be increased and their melioration level raised on an area of more than 1 million hectares.

Most of the reclamation organizations successfully handled the planned work volumes during the first 4 months. Many collectives are lowering the cost of performing this work. The December 1983 Plenum of the CPSU Central Committee assigned us the task of increasing labor productivity by 1% over the planned figure and reducing production costs by half a percent.

If all of the reclamation organizations exceed the planned figure for growth of labor productivity in construction by 1%, this will make it possible to perform 64 million rubles worth of additional construction and installation work. And a reduction of half a percent in outlays will save tens of millions of rubles. This equates to placing an additional 15,000 hectares of irrigated land and 20,000 hectares of drained land into use.

The reclamation workers have everything they need to further accelerate water management construction: powerful equipment, a developed construction industry base and experienced cadres. The primary task this year is one of drawing all the reclaimed farmland, without exception, into production and achieving an efficient crop structure. At least 450 kilograms of mineral fertilizers (active ingredients) per hectare is being allocated to farms cultivating grain, feed crops and soybeans on irrigated land. We are thus talking about a drastic increase in the return from each hectare of improved land.

Concentrating funds at the facilities and construction projects and reducing the duration of the construction process and the number of projects constitute one of the most important steps for enhancing the effectiveness of capital investments in land improvement. We have serious failings in this respect. Last year 57 projects were supposed to be released for use, but only 35 were actually completed. Some of them have been listed as priority projects over a period of many years. Moldavia's Ministry of Land Reclamation and Water Resources is more in debt than others to the crop growers. Four irrigation systems have not been placed into operation there. Glavkarakumstroy, Soyuzkalmvodstroy, Glavastrakhannrisstroy and Glavvolgovodstroy [expansions unknown] have been working on a number of planned construction projects for a long time without completing them. This is due to a scattering of funds at numerous projects, violations of state discipline for localistic reasons and poor labor organization.

I shall cite the Raduga Sprinkler Plant under construction in Krasnodar Kray as an example. This project is the offspring of a scientific and technical program for introducing the Kuban' machines. The ministries in Moscow are striving for the most rapid accomplishment of the assignment, but there is no real concern for accomplishing it in the territorial main administration.

Last year the enterprises and organizations of our system turned over 90% of the irrigation projects with a rating of "good" or "excellent", 91% of the drainage projects and 87% of the housing construction projects.

We have to admit, however, that we still have numerous complaints from the kolkhozes and sovkhozes about the poor quality of the land improvement work. Up to 25% of the irrigation facilities turned over by Glavvolgovodstroy, Glavdal'vodstroy and Glavrissovkhозstroy, for example, have a rating of "satisfactory."

We play a direct part in the resolution of social problems in the rural area by building agricultural water supply facilities. Glavastrakhannrisstroy and Glavrissovkhозstroy have only fulfilled the plan for start-up of group-use water lines by 18 and 80% respectively, however.

I would also like to mention shortcomings in the organization of sponsorship over the construction of facilities in the Nonchernozem Zone of the RSFSR. The Moldavian SSR's Ministry of Land Reclamation and Water Resources worked extremely unsatisfactorily in this respect last year in Udmurtia, Glavazmeli-ovodstroy in Arkhangelsk Oblast, Glavsredazirsovkhозstroy in Ivanovo Oblast, among others.

The improvement of technological discipline and the adoption of progressive forms and methods of labor organization are important conditions for working successfully in land improvement engineering. All of the construction main administrations and ministries have an entire network of dispatch services, IVTs [computer information centers], orgtekhvodstroy [organizational and engineering offices for the construction of water management facilities?] and various laboratories, which are required to provide the engineering preparation for construction, to actively introduce advanced methods, react promptly to breakdowns in the construction line and eliminate bottlenecks. In fact, however, the engineering preparation is sometimes performed only as a formality.

We need to build more rapidly, better and less expensively. In order to achieve this we should first of all increase the degree of plant finish for products and turn the construction areas into installation sites.

This makes it highly important for the construction materials industry to begin putting together the start-up program strictly according to the list and in accordance with construction schedules. It is soon going to have to set up at its own enterprises the additional production of a number of products and structural elements, the need for which is not presently being met by the industries of other ministries.

Manual labor continues to account for a large portion of the work in the branch, the work is organized on a low technical level, and the adoption of means of small-scale mechanization, sets of standard equipment (normokomplekt), new equipment and technology and the brigade contract is lagging. Attempts are being made to universally organize small-scale mechanization sections. A total of 1,430 sets of small-scale mechanization means have been produced, for example, but as of now only 430 of them are in use.

We understand that only the industrialization of construction can reduce the growing need for workers. In order to achieve this the output of the enterprises must conform to the needs of the construction and start-up complex and the operating organizations. Unfortunately, this is not the rule.

The application of new sprinkler equipment is one of the directions for technical progress in land improvement. Despite this the production plan for the needed machinery was not fulfilled last year. This was the fault of the ministries of land reclamation and water resources of the RSFSR, the Ukrainian and Kazakh SSR's, Glavrissovkhodstroy and Glavazmelivodstroy. The following example attests to the good technical and economic data for the Kuban' sprinklers. The use of these sprinklers on the Lebedevskiy Sovkhoz in Engel'skiy Rayon, Saratov Oblast, made it possible to obtain 53 quintals of wheat per hectare, 552 quintals of green mass from perennial grasses, and 440 quintals of corn for silage.

It was rightly pointed out at the All-Union Economic Conference on Problems of the Agroindustrial Complex that the land improvement organizations have channeled their funds primarily into new construction. Inadequate resources were allocated for the reconstruction and proper maintenance of existing systems.

The technical improvement and reconstruction of existing irrigation and drainage systems, the lining of canals, the construction of a drainage and collection system and major land leveling are now being performed on a planned basis and on a large scale for the first time.

The Food Program of the USSR calls for the achievement of guaranteed grain production, especially corn, in the areas of irrigated crop cultivation, to make it possible to obtain at least 15 million tons of grain on the irrigated land in 1985 and 20-22 million tons in 1990. This includes 3 million tons and 3.3-3.5 million tons of rice respectively.

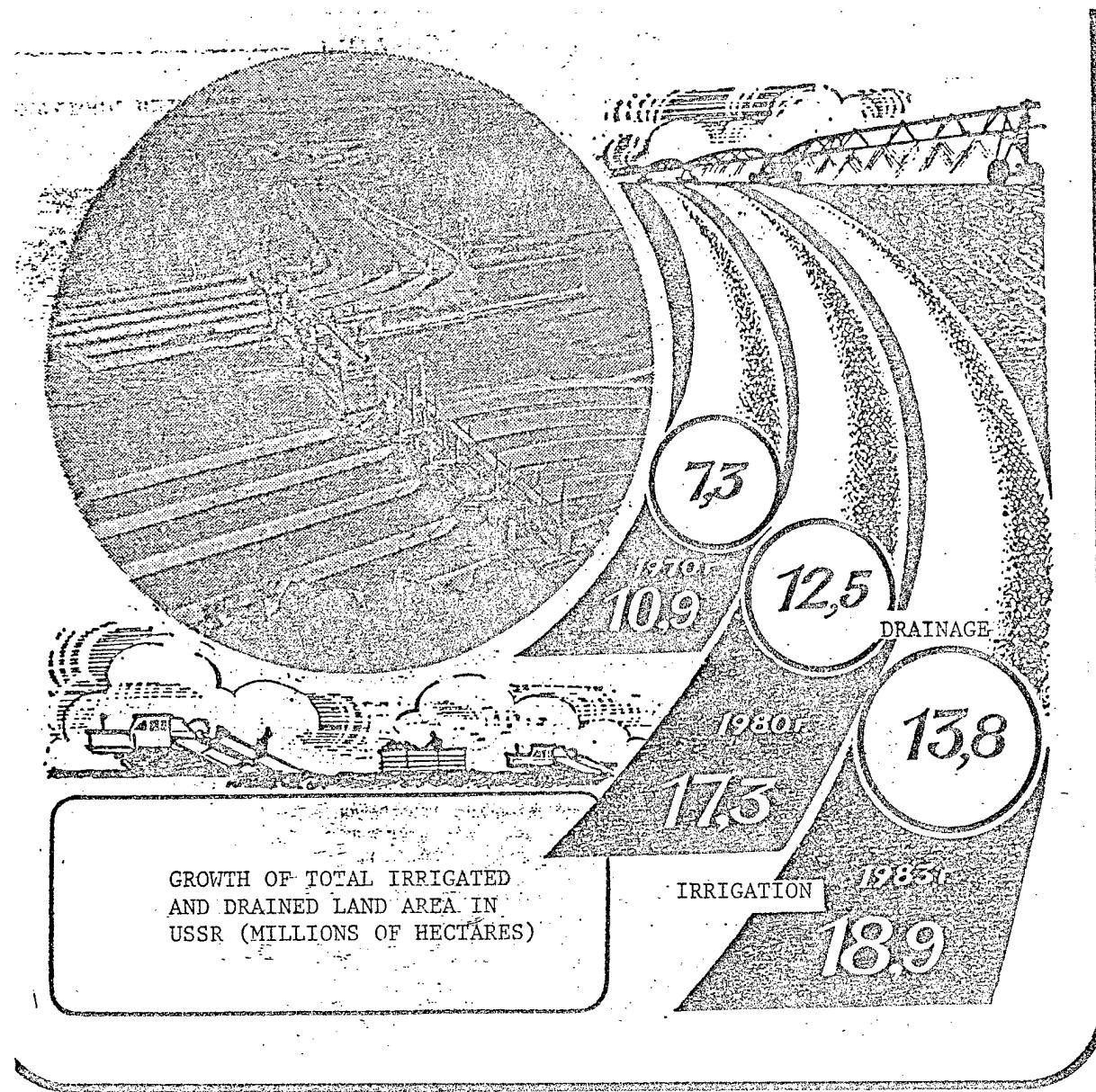
It is no less important to increase feed production on the improved land and to create within each livestock complex with the necessary conditions, irrigated farmland for raising perennial grasses, root crops, silage and other intensive feed crops. The development of melioration in the period ahead has a number of specific features. First of all, the new irrigation operations will require many billions of cubic meters of irrigation water. This means rerouting the run-off from northern rivers to the southern regions. This task is being assigned at the practical level and demands that we build up the technical base for land improvement, particularly the provision of more productive equipment, pumps and power facilities.

We are also going to have to raise the level of all the economic work in the branch. Unfortunately, there are serious failings in this area. They are the result of a conciliatory attitude on the part of the leaders toward shortcomings, unsatisfactory control over the decisions adopted and the observance of state discipline. The main stress must be on improving the level of management, making more complete use of the production capability and all material, labor and financial resources.

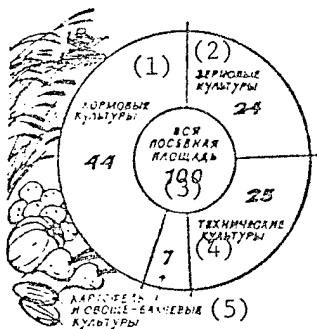
Contemporary scales and rates of development of the productive forces demand that responsibility be increased for the efficient use of water resources. A great deal of polluted sewage is still being discharged. A great deal of blame for this also lies with the water inspection agencies. As a result of inadequate demandingness on the part of these agencies many ministries and departments fail to fulfill plans for capital investments in water protection construction each year. Workers with the water inspection agencies should work more vigorously to reduce specific water consumption per unit of output and to increase the use of water in circulating and no-drainage water supply systems.

We still have cases of production capacities being placed into operation without the purification facilities being ready. The Samarkand Poultry Farm, a hog complex in Tashkent Oblast and a number of other projects were accepted with these infractions. The Main Water Protection Administration is still not demanding enough with respect to the performance of the corresponding republic subdivisions, and the latter are in turn not demanding enough of the basin administrations and inspectorates under their jurisdiction. The maximum conservation of water resources and their efficient utilization are assuming prime importance.

New agencies for managing the agroindustrial complex have been created and are functioning in the rural area. It is our task to provide them with all-round



Structure of Sown Areas on Irrigated Land (in percentages)



Key:

1. Feed crops
2. Grain crops
3. Total sown area
4. Industrial crops
5. Potatoes, vegetables and gourd crops

assistance in this work and to totally subordinate all of the practical work to the interests of the kolkhozes and sovkhozes. This must be done by improving economic and management relations with the partners and by increasing the amount of services provided the kolkhozes and sovkhozes.

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